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ORIGINAL ARTICLES.

REPORT OF CASES OF MORAL IMBECILITY, OF THE OPIUM-HABIT, AND OF FEIGNING, IN WHICH FORGERY IS THE OFFENCE COMMITTED.¹

BY J. T. ESKRIDGE, M.D.,

OF DENVER, COLORADO;

PROFESSOR OF MENTAL AND NERVOUS DISEASES IN THE UNIVERSITY OF COLORADO; NEUROLOGIST TO THE ARAPAHOE COUNTY, TO THE ST. LUKE'S, AND TO THE DEACONESS HOME HOSPITALS.

DURING the past year I have been called upon to testify in the criminal court in several instances in which the subjects arraigned, all for the same offence, forgery, presented the same excuse, insanity. I have arranged these cases into three classes: moral imbecility, morphinomania, and feigning. As most of the persons assigned to each class present many features of interest, both to the lawyer and physician, I shall give histories illustrative of each group.

CASE I. *Moral imbecility*.—R. B. T., twenty-two years old, a male, and by occupation a printer, has been arrested for numerous forgeries. I have been unable to learn anything definite of the patient's family history, but from a letter written by his mother, in which she claims an exceptionally good record for the family, I think that she is mentally below the average. The young man is a decided blond, of medium height; he is slender, pale, and presents a weak and anemic appearance. His head is of fair size, but it is irregular in outline, and is in aspect decidedly different from the average head. He seems bright and intelligent, is said to be quite expert at his trade, and is a voluble and rather plausible talker. Of his life before his fourteenth year I have been unable to learn anything, but at this age he began to learn his trade, soon became addicted to the excessive use of cigarettes, indulged in alcohol and venery, contracted the habit of gambling, and not long after his fourteenth year he commenced to forge checks for small amounts. This he did in Pueblo, and, on being arrested, his family redeemed the checks and he was not prosecuted. After being released, he again committed forgery, never drawing a check for a large amount, but simply making them large enough to supply money for his immediate drinking or gambling purposes. He went to Kansas City, worked for a short time, but soon resumed his habit of forging checks to secure small sums of money. He was accustomed to draw a check in his own favor, signing it in the name of some imaginary party, and before the check went to protest he would secure money on another

forged check and pay the amount of the former forged paper. He seemed to regard his actions as legitimate, provided he succeeded in paying the checks before they went to protest, and appeared unable to realize anything criminal in his acts. He finally succeeded in drawing the money on so many checks that he was compelled to leave the city to escape arrest. He returned to his family in Pueblo, again forged several checks, and was arrested. His family again came to his rescue, but warned him that if he were again arrested for forgery they would not try to shield him from the law. He came to Denver in the latter part of the year 1891, and before he had been in the city twenty-four hours he forged three or four checks, all for small amounts. To illustrate his actions I will read from his attorney's letter to me.

"DENVER, COL., May 24, 1892.

"The facts pertaining to R. B. T., so far as I have any connection with his case, and so far as I possess any knowledge of him as an individual, are substantially as follows:

"Some time prior to December, 1891, he was arrested and charged with the passage of some three or four forged instruments of writing. He caused himself to be entered, in one of the trials, as his own attorney, and defended himself with very considerable vigor, but, of course, without any technical knowledge, and the result was a conviction. The conviction was set aside for manifest errors, and I was assigned to defend the prisoner.

"I undertook his defence, and endeavored to establish an alibi, but was not successful. He was again convicted, and sentenced for a period of eight years to hard labor in the penitentiary. I took out a writ of error to the Court of Appeals, and upon a presentation thereof, was granted a supersedeas, wherein the bond was fixed at \$1000. This bond was given and T. was again at liberty. He went to the town of Ouray, Colorado, and remained there several months, until his other cases, which had not been disposed of, were set for trial, and practically beat his way on the railways from Ouray to Denver, a distance of several hundred miles. Upon his arrival here, I succeeded in having his various cases continued to await the action of the Court of Appeals in the supersedeas case pending in that tribunal. I then explained to him (and he fully understood the facts), that the Court of Appeals would not pass upon his case prior to September or October (about six months later), and that, in my opinion, the case would be reversed, and in all probability his cases would never be tried, provided he would behave himself in the meanwhile as a law-abiding citizen should. He promised me a faithful observance of my instructions to him, and immediately thereafter, without any provocation so far as I can see, and with money in his pocket, enough to support him, and with a good trade as printer, at which he is an expert, he proceeded to forge some seven or eight checks for a gross aggregate amount not to exceed sixty-five or seventy-five dollars.

"In his earlier forgeries in 1891, which were likewise in very small amounts, he used the name, S. M. Simpson, and signed them either with that name or with a

¹ Read before the Medico-Legal Society of Denver.

name of similar sound. In his more recent forgeries, taking place a month or two ago, he used the same character of handwriting and the same name, with, perhaps, one exception. There has never been an attempt in any of his forgeries to feign any handwriting, and I think, with one exception, the payee in all of them has been the same."

The young man, in the latter part of May, 1892, was brought to my office, where I spent about two hours in investigating his case.

I found that all his forgeries had been committed solely and simply as a matter of convenience, and that he did not think he had ever committed forgery in a criminal sense. He never drew a check for more than a few dollars, just enough to meet his present wants, and seemed to believe that if he succeeded in raising the money to pay the check before it went to protest he had done nothing more than play a smart trick to secure money for a pressing necessity. All his actions sustained this view of his case. He had on more than one occasion drawn a check for a few dollars, when he had at the same time money at his room. He said he did this because it was more convenient to draw a check than to stop his gambling and go to his room for money. If he were unmolested, the next morning he would pay the check before it went to protest. He acknowledged that forgery, as ordinarily practised, was a crime and should be punished. He appeared to think that he was being persecuted, and did not realize that he had done anything wrong in forging a man's name to secure money, when he meant to pay the check himself, and prevent anyone losing anything by his actions. He is supremely egotistical and intensely selfish, and cannot realize that his convenience should be interfered with, even though the whole community should suffer on account of his actions.

At his trial for insanity in the county court, I testified that I believed him to be a moral imbecile, whose selfishness and egotism caused him to disregard all law when he wished to gratify some passing desire. The jury returned a verdict of insanity, and he was remanded to the custody of the sheriff until room for him should be found in the State Asylum. He is still in the county jail here, and has been since his trial, as our State Asylum is overcrowded. At his trial he ignored his insanity and tried to justify his actions on the score of expediency.

During his stay in the county jail he has written several long and interesting letters. In a letter to his wife, written a few days after he was adjudged insane, he exultantly recounts his triumphs in Denver. He tells her that through the shrewdness of his attorney and his own masterly way of conducting himself, the judge, the jury, the county attorney, and even an expert on insanity, have been deceived, and he has been declared insane. He informs her that he is not very bad, and that, although only two days have elapsed since the trial, he is already able to recognize his attendants; and one week's detention in the asylum, to which he feels sure he will be transferred in a day or two, will suffice for his complete recovery. His conduct in the

jail has been overbearing to an offensive degree. He speaks to his attendants as though they were his vassals, declares that he is being persecuted, and pompously asserts that he is going to have the whole matter investigated. He insists on his attorney visiting him several times each week, and relates to him in great detail his real or supposed wrongs. He yet languishes in jail, but still remains the same overbearing, unconquered, self-important individual. This young man indifferently drew checks on any convenient bank, and with none of which had he ever kept an account.

We will now study the nature of moral imbecility and compare T.'s case with others that are on record.

Bucknill and Tuke, in their work on *Psychological Medicine*, in a foot-note on page 49, state: "In fact, the term moral insanity is now universally restricted to that morbid condition which results in immoral acts without apparent intellectual disorder." Dr. Crichton Browne's description of moral insanity, written many years ago, is regarded as one of the best. He says:

"Moral insanity is of frequent occurrence in early life. The intellectual faculties of the person affected by it remain entire and unimpaired. He is perfectly capable of perceiving and knowing and judging. He cherishes no delusion. He cannot in the ordinary and legal acceptance of the term be pronounced insane, and yet he is to all intents and purposes of unsound mind, and as much requiring guidance, restraint, and treatment as the furious maniac. He suffers from entire perversion of the moral principle, from the want of every good and honest sentiment. He is actuated by impulse, or by the most selfish, depraved, and cruel motives; he presents, in short, a perfect picture of a desperado or ruffian. The existence of moral insanity, like the existence of everything else, has been called in question, and at the present day there are not lacking those who will recklessly commit the moral monomaniac to the scaffold or the penitentiary, little thinking that in so doing they punish disease and not crime. We are forced to acknowledge moral insanity as an actual disease by the most cursory glance at the previous history of some of those by whom it is manifested. Many of them from being refined and virtuous, and upright and prudent, have become coarse and licentious, and dishonest and reckless. We believe that many of our jails and penitentiaries are peopled by such." (*Ibid.*, p. 244.)

Dr. Prichard, one of the ablest and earliest of English physicians to devote much time to the study of the form of insanity under consideration, remarked: "It seems not improbable that many persons, wrong-headed and perverse through life, and singularly capricious and depraved, would afford in reality, if the matter could be ascertained, examples of moral insanity, native or congenital." (*Ibid.*, p. 245.)

Bastian wrote many years ago: "There are certain beings who are moral imbeciles." "It is remarkable," he states, "what an acute intellect may sometimes coexist with an entire absence of the moral sense." (*Reynolds's System of Medicine.*)

Cases of moral imbecility are often difficult to diagnosticate. Some may take the form of so-called

kleptomania, some of pyromania, some may be impulsively homicidal or suicidal, others may be simply vicious and perverse, taking delight in acts of cruelty or in annoying their associates; while, in all, there is to a greater or less extent a loss of self-control.

In a recent brochure entitled *Prichard and Symonds; with Chapters on Moral Insanity*, Tuke gives a letter from Dr. Prichard to his (Tuke's) father, in which he says: "I am desirous of knowing whether you have observed (at the York Retreat) any cases of moral insanity. By that term I distinguish the mental state of persons who betray no lesion of understanding, or want of the power of reasoning and conversing correctly upon any subject whatever, and whose disease consists in a perverted state of the feelings, temper, inclinations, habits, and conduct."

Dr. Tuke himself describes the condition as being "not loss of memory, not delusion or hallucination, not any deficiency of talent or genius, not any lack of mental acuteness, and certainly no incoherence of ideas or language, but a deficiency or impairment of moral feeling or self-control, such being either the development of a character natural to the individual, or a departure from it, which contrasts most strikingly with its former traits." (*Brain*, part lvii, p. 126.)

Tuke says that the diagnosis of moral insanity cannot be made by any rule, but that each case must be studied and decided in relation to the individual himself, his antecedents, education, surroundings, and social status, the nature of certain acts, and the mode in which they are performed, etc. (*Ibid.*, p. 131.)

We have, then, in moral imbecility a moral perversion, with loss of self-control.

The young man, the history of whose case has just been given, is nervous, subject to attacks of severe headache, with slight fever, coming on once or twice each year, and lasting one or two weeks at a time. Early in life he fell into habits fitting a criminal of mature years, and forged checks for small amounts, from time to time, apparently as a matter of convenience. The amounts of money he secured on checks were always small, and the forgery was done in a routine and systematic manner. When asked in court if he did not know that forgery was a crime and punishable, he promptly replied that he did, and made no effort to explain why he had committed forgery. He was asked if he had not committed forgery. He said that he supposed he had, or, at least, people seemed to think he had. On inquiring if he expected to commit forgery again, he replied that he did not, as he had no desire to be imprisoned. Then he was asked what he would do if he wished to purchase a parcel of goods, if all his money should happen to be at

home, several blocks distant. His answer was that he would either go and get his money, or give a check for the amount, then get the money and pay the check at his convenience. When asked if he did not know that this would be forgery, he indignantly replied that it would not, as he would not be trying to cheat anybody. Convenience with him is supreme law, and self-gratification the great object of life. Egotism and a disregard of the rights of others characterize all his actions. All of his actions with which I have become familiar correspond with the statements that he made to me and before the jury.

The next case that I wish to report is one of moral imbecility, complicated by the opium-habit. Alcoholics and neurotics are found in the family tree.

CASE II.—Mrs. W., twenty-four years of age, of Nebraska, is a large fleshy woman; mentally rather dull, and her mind acts slowly. As a girl, up to her sixteenth year, when she was married, she manifested few symptoms different from other girls of her age, except that she seemed wayward, headstrong, and somewhat eccentric. At her first confinement she became insane (form not known), and remained in this condition for several months. Shortly after her recovery from this mental aberration she became hysterical, peevish, and fretful, and developed kleptomaniac tendencies. When she went to a store to order groceries she would fill her pockets with articles of slight value. Many of these were absolutely useless to her. At times she ordered goods in considerable quantities to be sent to the houses of different persons, saying that she had been requested to leave such orders. Finally her lying and thieving propensities caused her to be such a nuisance that merchants ceased to believe or trust her. After a while she began to have hysterical paroxysms, of several hours' duration, during which she would lie convulsed and semi-conscious. About this time, some four years ago, she began the use of morphine. She had hysterical hemi-anesthesia that lasted a year. Some three years ago she began to attend the meetings of the Salvation Army, and by some of the religious fanatics she was considered quite an acquisition to their ranks, as she made as much noise and professed as great a change of heart and character as the best of them. One night, in their experience meetings, she arose and said: "I wish to tell what the Lord has done for me. Last night I slept in the arms of a railroad man; to-night I shall sleep in the arms of Jesus." Some one in the gallery inquired in a loud voice, "Are you engaged for to-morrow night?" The meeting went on till a late hour as usual. When it ended, and the people were leaving the house, she was seen standing in the vestibule looking searchingly at the male portion of the congregation as they were leaving the building. Finally, when most of the people had left, she inquired of a man if he knew the man who inquired if she were engaged for "to-morrow night," stating she would like to see and make an engagement with him.

I mention this episode in the life of this moral imbecile to illustrate the utter worthlessness and hollowness of all professions of reformation made by such mentally defective creatures.

Whether she had resorted to forgery before she came to Denver about two years ago, I was unable to learn. Her husband is small, insignificant-looking, and a worthless-appearing man. It seems that he and a certain other man were cognizant of her forgeries and profited by them, if they did not suggest and direct them.

Within a few months after she came to this city she had succeeded in passing eighteen forged checks, all for small amounts. They were all in the same handwriting, which did not differ materially from her usual writing, with one, or possibly two exceptions, signed by the name of the same person, and were nearly all, if not all, drawn in favor of the same individual. About the only variation that was noticed about the checks was a change of address on nearly every one. It was her custom to go into a store and order a small bill of goods sent to her at a certain address, and then offer in payment a check drawn for about ten or fifteen dollars. As the purchase that she had made did not amount to more than two or three dollars, she obtained, as a rule, about ten dollars for each check.

When she was arrested and committed to the county jail she was under the influence of morphine, and probably of whiskey. She claimed to have been accustomed to take from ten to twenty grains of morphine daily. I saw her, after her imprisonment, with Dr. M. Baker, and we soon succeeded in reducing the quantity of morphine to two grains daily, and in about one month we stopped it entirely. She gained considerably in flesh after the drug had been discontinued.

When she was being tried for the forgeries, at the request of the district attorney and the attorney for the defence, the court appointed Dr. McLauthlin and myself to make an examination into her mental condition.

We found no physical evidence of any organic nervous lesion, and physically she appeared to be in an excellent condition, notwithstanding that she claimed to be unable to feel the contact of substances or the prick of a pin in certain areas. On repeated examinations of the sense of touch and pain over different portions of her limbs we found the areas to change in size and situation from time to time; so that we were forced to the conclusion that she was feigning anesthesia and analgesia. She appeared to have but little regard for the truth, but exhibited great caution and deliberation in her answers to our inquiries concerning the forgeries, lest she should contradict herself. She claimed to know nothing of all the checks, save one, and to remember nothing of obtaining money or goods on any but this one. This particular check she said was given her by a male friend. When asked why she had given a wrong address when she obtained money and goods on it, she said that she did not want the merchant to know where she was stopping. On having her write her name and then showing her the identity of the handwriting on the forged checks

and on the paper on which she had just written her name, she became confused, but stuck to her former statement that the check had been written and given her by a friend. On questioning her in regard to her actions on the days on which the seventeen other checks had been drawn and passed, it was found that she had a fairly good memory for everything that occurred on those days, except what took place in relation to the checks.

Dr. McLauthlin and I agreed that she was feigning, knew all about the forged checks and the obtaining of money and goods on them; and we further agreed that she was a moral imbecile. Before we were called into the district court to testify, she was taken to the county court and adjudged insane, and remanded to the care of her father and mother in Omaha, where, I have no doubt, she is still pursuing the even tenor of her ways, and probably visiting revival meetings and professing great change of heart.

In the county court I simply testified that the unfortunate woman was morally rotten, that she was a criminal and moral imbecile by inheritance, nature, and practice, without self-control to restrain her from following her evil impulses, and that she was incurable and would live and die a criminal and a moral blot upon the community in which she chanced to reside.

On comparing with each other the histories of the two cases just related it will be perceived that they vary greatly in certain respects. In one, the young man, there are no kleptomaniac tendencies; he is bright, intelligent, egotistical, and oblivious of the rights and privileges of everybody else; he will not steal, he abhors a thief, although he has not hesitated to take mean advantages of his partners in the gambling business; he is a systematic petty forger, to such an extent that he may be said to have a *penchant*, or almost a mania, for forging, yet his actions have shown that these forgeries have been committed rather for convenience than for the purpose of defrauding anyone; he seems to take pride and delight in obtaining money on a worthless piece of paper, and tries to pay the check before it is protested. In this he can realize nothing wrong. When confronted with his crimes he denies nothing, but acknowledges all, gives a detailed account of every transaction, his intentions, and the causes that led up to the forgery.

In the other, the young woman, kleptomaniac tendencies have been manifest for a number of years; she is dull, somewhat stupid, suspicious and deceitful; she exhibits no egotism, and apparently cares nothing for the opinions of others; she is not a systematic forger, but seems to have been actuated by a different motive than that shown by the young man; she desires to defraud, and by falsehoods keeps her address a secret; it is only comparatively recently that she has resorted to this method of gaining money, and when confronted with proofs

of her guilt she lies, and persists in lying, although she knows that she is not believed. She even denies all remembrance of obtaining money on more than one check, and this she maintains was not forged by her, although her own handwriting condemns her.

What is the difference? The young man belongs to a more definite and better class of moral imbeciles than that to which the woman is assigned. He does wrong because he sees and recognizes no wrong in what he does. In the woman two causes seem to be in operation—one a partial moral obliquity, and the other a delight in doing wrong because it is wrong.

There is one mitigating circumstance connected with the woman's forgeries, and this should not be omitted in summing up the character of her actions. It was observed that when she obtained money on forged checks she was always joined by her husband or by another man soon after she left the store. This would suggest that these men were acquainted with her doings while in the store, and probably had suggested the forged checks as a means of obtaining money. Now take a person morally depraved as this poor unfortunate creature is, and he becomes the dupe of every designing individual who happens to have influence over him.

CASE III.—The third case that I report is quite brief. It is in relation to the criminal action of a morphine-habitué, a young man, whose family and personal history I was unable to obtain, further than that he had been accustomed to the free indulgence of morphine for eight or ten years, and during the last two or three years preceding the crime had been in the habit of taking from twenty to thirty grains of morphine daily. He was accompanied by two young men to a second-hand clothing store, obtained a suit of clothes for which he was to pay six dollars, produced a check drawn in his favor for twelve dollars, signed it, and received six dollars in change. Nothing wrong was observed with the young man during the transaction. Shortly after this the check was found to be worthless, and the man was arrested. He denies having any knowledge of obtaining either clothes or money on the check, although it was proved that he had obtained both, and had written the check himself. The plea of amnesic insanity was set up by the defence, on the ground that he had taken about ten grains of morphine just before the transaction.

I was appointed by the court, at the request of the defence, to testify in regard to the man's insanity at the time of the transaction, and in regard to the influence of morphine on the mind. I found that the man remembered almost everything that occurred on the day of the alleged transaction except the transaction itself.

After giving the attorney for the defence my opinion in the case, and telling him that I should have to testify in the main against his client, I was

requested by him to take the witness-stand. He asked me only one question: the influence upon the mind of the free and prolonged use of morphine. I testified, of course, that it made a moral wreck of a man and lessened and destroyed his self-control. On cross-examination I was asked (although the defence objected to the question) the immediate influence on the mind of the usual quantity taken by morphine habitués before the period of stupor was reached. I answered that it brightened and quickened the intellect, improved the memory for the time being, and put the opium-user in the best possible mental and physical condition. I was asked if the habitués of morphine knew right from wrong under such circumstances. I answered that he would distinguish quite clearly, although he might be unable to resist doing wrong. The young man was convicted and sentenced to the penitentiary.

I believe that this man was a tool in the hands of his two evil companions. They probably planned the crime and he carried it out. He probably realized that he was doing wrong at the time of the act, but moral control was gone, and the hope of obtaining money for further indulgence in morphine made him a ready victim for almost any crime suggested to him.

CASE IV.—The fourth and last case that I report requires a little more careful study than Case III.

The patient is a young man of twenty-two years of age, newly married, and of an intelligent, mild, and prepossessing appearance. He is a college-graduate, and has received a fairly good business education. He came to Denver about one year before his arrest in this city, and like the majority of people who do not belong to one of the three professions, he entered into the real-estate business. His life before coming here, so far as I was able to learn, had been exemplary. He met and married a young and rather prepossessing lady whom he had led to believe that he was doing a prosperous business and had become possessed of considerable wealth. He said that he was agent for a tract of land in Texas, for which he claimed that he would make twenty-five thousand dollars. He bought three houses and lots, for which he had no money to pay. He purchased expensive furniture for his office, and for this he gave a check on the bank in which he had formerly kept an account. His grocery bill amounted to seventy-five dollars. He drew a check payable to his wife on the same bank for more than the amount of the grocery bill, went with her to the groceryman, and had her pay his bill with the check. Within a few days he drew several checks for various small sums for debts contracted and purchases recently made. Suddenly he disappeared and was not found for several days. During this time the checks had been protested. He was found staying in the unoccupied houses which he had recently bought. He was arrested and committed to jail, and I was requested by the attorney for the defence to make an examination of his mental condition.

After inquiring into his life, habits, and mental

powers up to the time when he began to draw checks for which he had no money in bank to pay, I took up in detail, beginning with the first, each amount for which he had drawn worthless checks, and found that he remembered with remarkable accuracy the minutest circumstances connected with each transaction. He could give the amounts of each check, the date it was drawn, and for what the debt was contracted. When I asked him why he drew the checks when he had no money in the bank, his invariable reply was that he knew he had some nine hundred dollars in bank, and if the bank said he had not, it made a mistake. I asked him if his bank-book did not show that he had no money on deposit in the bank. He said it might, but that he knew the bank was mistaken, as he had deposited about nine hundred dollars in the bank since his book had been balanced. I continued my inquiries into the time (several days) during which his whereabouts had not been known to his wife or his friends. For this period he claimed to have no memory whatever.

On inquiry at the bank, I learned that he had not made the deposits which he claimed to have made, and that he withdrew his account from the bank some nine months before the fraudulent checks were drawn. I found that he remembered his arrest while staying in the unoccupied house, but he said he could not tell how long he had regained consciousness before his arrest.

Without going into the reasons for my opinion, I told the young man's attorney that I felt positive that his client was feigning. I heard nothing of the case until about three months after my examination, when I was summoned by the district attorney to appear in the criminal court to testify in a case of alleged insanity. On my arrival in court I found the case was that of this young man. The district attorney did not know that I already had knowledge of the case. During the progress of the trial I learned from witnesses who testified in the case that several of the statements which the prisoner had formerly made to me and his attorney were false. After adjournment of court I began an examination of the prisoner in the presence of his attorney, the office of the district attorney not being represented. I found the young man exceedingly nervous and despondent. Several developments in his case had occurred during the time that I had been in court which proved that he had not been truthful either with me or his attorney. I abruptly demanded of him to know why he had dealt falsely with his attorney and me, and told him that I feared it was too late to do anything for him, but advised him to tell us the whole truth and we would do all that we could for him. He expressed regret that he had not been truthful, and with tears in his eyes frankly acknowledged that he knew when he drew the checks that he had no money in bank, but excused his conduct on the ground that money was due and promised him, and he had expected to collect this and deposit it in bank before the checks were presented. Failing in this, rather than tell his wife and creditors his unfortunate condition, he had tried to secrete himself, when he was arrested.

It is needless to say what the verdict of the jury was.

We may inquire, What should be done with the criminal moral imbecile, or with the criminal moral reprobate caused by the use of alcohol or opium? Shall he be allowed to go free on the plea of insanity and irresponsibility? The community has certain rights as well as the individual, and those of the former are greater than those of the latter. It seems to me that the only feasible solution of the subject is to make all criminals who are not suffering from those forms of insanity that necessitate their confinement in an asylum responsible to the law for their conduct, but to modify the punishment according to the degree of self-control possessed by each class. Neither the insane asylum nor the penitentiary is a fit place for the moral imbecile, or for the criminal insane in general. It is an outrage to subject the insane to the constant presence and association of the criminal insane, and it is equally unjust and inhumane to confine the latter with the hardened criminal, such as are found in our jails and penitentiaries. Every State should have a separate place provided for its criminal insane.

Owing to the indefatigable and intelligent efforts of Dr. Peterson and his co-laborers in the cause, the State of New York is about to establish a home for its epileptic population. Let us hope that this good work may spread to every State in the Union, and that not only the epileptic but also the insane criminal, of which the epileptic population forms no insignificant proportion, may be equally well and suitably provided for.

THE ETIOLOGY OF GASTRIC ULCER.¹

BY CHARLES G. STOCKTON, M.D.,
PROFESSOR OF THE PRACTICE OF MEDICINE IN THE UNIVERSITY
OF BUFFALO, N. Y.

THE mucous membrane and the deeper structures of the stomach may suffer loss of substance from a variety of processes that may with truth be called ulceration. Thus, ulceration may take place from traumatism, corrosives, scalding fluids; from tuberculosis, syphilis, scurvy, or from serious blood-changes; from extensive burns, from continued pressure, and from other causes that disturb the nutrition of the part.

However, for an ulcer occurring most often in young women, which is usually round; having about it healthy mucous membrane; its margin being abrupt and clean-cut, so that in old cases it has a distinct punched-out appearance (as Rokitsky aptly describes it); generally found alone, but occasionally having one or two companions;

¹ Read at the meeting of the New York State Medical Association, in New York City, November 17, 1892.

located, as a rule, on the posterior wall near the pylorus, and often near the lesser curvature; almost invariably associated with an excessive secretion of hydrochloric acid, and not infrequently with anemia—which is called the “simple,” the “solitary,” the “round,” the “perforating,” the “peptic,” the “ulcer of Cruveilhier”—for this there has been suggested no cause that is satisfactory, or that answers all important requirements.

It is not to be supposed that one can draw an uninterrupted and perfectly distinct line of separation between true round ulcer and all other forms of gastric ulceration. It is probable that in many instances the processes are so intermingled and confused that even the fullest knowledge of the facts would leave differentiation incomplete; but the fact must, nevertheless, not be lost sight of that in the classical “round ulcer” no theory of etiology so far suggested has proved to be altogether satisfactory. Before discussing this part of the subject, however, let us consider what we know of the causes of gastric ulcer in general.

It is widely believed that the bacilli of tuberculosis passing through the stomach may invade the intestinal mucous membrane, and yet that this organism, while not destroyed by the gastric secretion, has not been shown to be a cause of local trouble in the stomach. Notwithstanding this, there are now reported numerous authenticated instances of tuberculous disease of the stomach,¹ and occasionally extensive ulceration of the mucosa is seen.

Syphilis, according to histologic examinations made by Guozot,² has been shown to be a cause of ulcer, and Heller³ thinks that syphilis plays an important rôle in congenital ulcer, of which a number of cases have been reported.

The disintegration of neoplastic tissue can scarcely be considered as ulceration of the stomach, although it is well known that carcinoma often finds its seat in the place of a preceding ulcer. Albertoni,⁴ however, reports a case in which an ulcer was complicated with adenoma of the stomach, and believes that the ulcer resulted from a previous growth of this nature. Turner⁵ describes a circumscribed superficial slough of the gastric mucous membrane in a man suffering from pyemia following a fracture of the tibia, and similar cases resulting from septic emboli have at long intervals been reported.

I have seen erosions of the gastric mucosa resulting from extravasations of blood into its substance, in cases of purpura and scurvy; and, according to Wales,⁶ such lesions and even distinct ulceration are rarely absent in the latter affection.

Quiroza⁷ reports cases of gastric ulcer resulting from dysentery, puerperal septicemia, and typhoid

fever, and this author believes that the affection is the direct result of numerous diseases of the body.

An interesting and ingenious explanation of the affection is that given by Wiktorowsky,⁸ who maintains that from chronic catarrh the establishment of the chronic interstitial process, up to perforating ulcer of the stomach, is but a continuous chain; but proof of this theory is wanting. Nevertheless, Peter⁹ and others hold that round ulcer is the result of a preceding gastritis, and the increased local temperature is mentioned as evidence in that direction. It will be remembered that Cruveilhier¹⁰ held to the inflammatory origin of the disease. There has been a general acceptance of the views expressed long since by Virchow, that the ulceration follows hemorrhagic erosions resulting from disturbances of the circulation; that “the interruptions of the circulation are for the most part due to morbid conditions of the gastric vessels, and particularly to a hemorrhagic necrosis of the mucous membrane.” This hypothesis at once opens a wide avenue for causative factors, and if it were not for certain reasons, hereafter to be mentioned, the attempt to point out a special process in the development of the ulcer described by Cruveilhier would be profitless.

It is most natural and sensible to suppose that, given a hemorrhagic necrosis of the mucosa and the presence of the active gastric juice, the part would become digested, and the typical excavation, so well described by Rokitsansky, would appear. This position is substantiated by clinical observations, post-mortem discoveries, and laboratory experiments, so that one cannot deny that ulcers are thus established.

In 294 cases, Berthold¹⁰ found disease of the circulatory apparatus in 170; while Steiner reports such changes in 71 cases out of a total of 110, finding particularly endocarditis, endoarteritis, and endarteritis. Thrombosis in various parts was demonstrated 48 times. Litten¹¹ saw a perforating ulcer with a thrombus in the splenic artery, and Janeway¹² describes a like case in which the ulcer was directly due to a fibrinous plug found in the gastro-epiploic artery. Provost and Cotard produced ulcerative changes in various parts of the alimentary canal by introducing tobacco seeds into the aorta, and other similar experiments are on record; and, as might have been expected, Letulle¹³ claims to have established the infectious origin of the gastric ulcer.

By experimental means, hemorrhagic necrosis, and, later, ulceration, have by several investigators been produced in dogs. Ritter¹⁴ succeeded by poking a dog's stomach with a cane, and Decker reports like results after feeding to dogs hot gruel. Quincke relates experiments on dogs with gastric

fistulae, in which the mucosa was injured by pinching, excision, or by tying off small portions; by thermal irritation; by caustics.

The animals showed no subsequent distress, nor was the digestion impaired, but the ulcers disappeared after from four to twelve days, although the repair was delayed materially by rendering the dogs anemic by bleeding. Von Sohlern¹⁵ thinks that a vegetable diet, by increasing the proportion of potassium salts in the blood, acts against the formation of ulcer, and he mentions the infrequency of the disease among vegetarian people. Silberman¹⁶ repeated these experiments with modifications, and reached the conclusion that ulcer might be caused by arterial anemia, venous hyperemia, portal stasis, circumscribed hemorrhages, or reduced alkalinity, and suggested that the hyperacidity of the gastric juice might depend upon the lowered alkalinity of the blood. Ulcers following blows upon the abdomen in dogs¹⁷ and men¹⁸ are reported, and it is well known that the condition is often seen after severe external burns.¹⁹

Localized pressure as a cause is mentioned by Rasmussen,²⁰ and M. Pettit²¹ has recently described a fatal case which apparently arose from pressure and rubbing exercised by a bony protuberance on the inside of the lower end of the sternum. Zielinski,²² of Warsaw, in a recent paper, considers as a cause of gastric ulcer the narrowing of the lumen of the vessels of the stomach from traction made by enteroptosis. Duodenal ulcer not infrequently follows external scalds and burns,²³ and occasionally also the stomach is the seat of like lesions;¹⁹ and severe injuries of various kinds, experimentally made upon animals,²⁴ have been followed by hemorrhagic necrosis in various parts of the body and in the stomach by ulcers.

Precisely how these changes are brought about is not clear, and it is therefore not surprising that, as Niemeyer has suggested, the nervous system may be a possible factor in the process. Indeed, it was with this in mind that Ebstein made the experiments just alluded to, which were a part of a series of investigations undertaken to show the relation that exists between certain severe injuries and gastric ulcer. Repeating the well-known experiments of Schiff, Ebstein reached somewhat different conclusions; but in the main, both of these investigators agree that injury to certain parts of the central nervous system (optic thalamus, pedunculus cerebri) is competent to establish *ulcus ventriculi*. Similar results followed a half section of the spinal marrow, and any great and often-repeated irritation of the sensory nerves led to quite uniform changes in the gastric mucosa. Talma²⁵ was able to produce ulcer by exciting spasm of the muscular coat of the stomach, through prolonged stimulation of the left

vagus. He suggests that the so-commonly-present hyperacidity may thus affect the pneumogastric. Apparently this throws light upon the mystery of the relation between external burns and ulcer, and is at any rate highly suggestive of a possible nervous cause operating in cases seen clinically.

Whatever the exciting cause, the lowered alkalinity of the blood on the one hand and the excessive acidity of the gastric juice on the other are generally acknowledged to be active contributing causes. Pavy²⁶ teaches that the normal alkalinity of the blood successfully opposes ulcer, by preventing the autodigestion of the stomach. This self-preservation on the part of that organ has been shown not to be dependent upon this condition, however, since Samuelson made the blood neutral, and yet the stomach continued to resist its own secretions. This fact throws discredit upon the theory so long and securely taught by Cohnheim,²⁷ and we must now conclude that in such investigations as these of Silberman's²⁸ the resulting ulcers were from some other change in the blood besides the mere lowering of its alkalinity. The views of Ewald,²⁹ that the blood-changes, to be operative, must be such as lower the resistance of the living cell, are more acceptable. There is apparently a close relation existing between the lowered alkalinity and the hyperacidity. The intimacy of the relation pointed out by Pavy has been acknowledged by many. Grime³⁰ quotes fifty-three cases of ulcer, all of which had hyperacidity, and concludes that it is due to the preceding chlorosis, and that, with those two conditions present, the slightest injury to the mucous membrane may form the focus of an ulcer.

Riegel³¹ and his students insist that the great excess of hydrochloric acid is the invariable accompaniment of gastric ulcer; and while this accords with my own experience, and undoubtedly is true of classical ulcer, there are undoubtedly cases, as shown by Ewald,³² that are not only without hyperacidity, but even show hypoacidity. The importance of the acidity in delaying the healing, is, as Riegel states,³³ very great, and that it has a marked influence in establishing the lesion is most probable, but the fact remains that ulcer may exist and persist without hydrochloric acid, just as it may appear in those who have not antecedent anemia.

In view of the foregoing facts, necessarily stated incompletely and with brevity, it seems justifiable to suppose that while ulcerative processes dependent upon tuberculosis, syphilis, pyemia, scurvy, and other serious dyscrasias, may proceed in the gastric mucosa, and while simple anemia with lowered alkalinity of the blood assists the process, while hyperacidity of the gastric contents greatly favors the change, there must still be some other as yet un-

known cause which in a certain group of cases leads to the necrosis, besides the accidental changes from thrombi and emboli, such as have already been cited above.

The reasons for this claim are: First, that the affection shows itself particularly in adolescence or before middle age, when there is the least probability of vascular changes; second, that it appears most frequently in women, who are less often subjects of arterial diseases than men; and third, because, with remarkable frequency, the ulcer selects for its site the lesser curvature and posterior wall of the stomach near the pylorus, a portion of the economy that is not often invaded by emboli, and a region of the stomach especially rich in anastomosing vessels. In a large number of cases Buchmüller⁴⁶ found over 93 per cent. on the posterior wall near the lesser curvature, and no certain cases under fifteen years. In the Berlin statistics not one case was found under the tenth year, and the greatest number between the twentieth and thirtieth years. It is occasionally congenital,⁵⁰ and one altogether exceptional case was found in a man, said to be one hundred and twenty years old.⁵¹ Greiss⁴⁷ found from three to five times as many scars in women as in men, and over 90 per cent. appeared on the posterior wall near the lesser curvature; and although many of these appeared in middle, and a few in advanced life, the beginning of the trouble was doubtless in earlier life, as Leube⁴⁸ has pointed out. Statistics abound in similar statements, as may be learned by consulting Welch's splendid monograph in Pepper's *System of Medicine*.

From the foregoing facts, namely, the propensity shown by the affection to select a certain site in females, and to appear in early life, has naturally arisen the suggestion that this form of ulcer may take its origin in some unknown but definite neuropathic change—trophic, vasomotor, or both of these. It has seemed to me remarkable that this view has not gained more adherents, since by no other evident hypothesis can these points in its natural history be explained.

In reflection on the matter, it has occurred to me that somewhat analogous processes are to be witnessed in other parts of the body, and that by using these as illustrations some insight into the pathology of round ulcer may be gained. For instance, the well-known proclivity of herpetic eruptions to attack particular points under especial conditions is brought forward, and attention is called to this common disease, that, depending upon nerve abnormality, is found, not only upon the skin, but upon the mucous membrane of various parts, including the mouth and throat, with a view of asking whether it might not select for its appearance the pyloric extremity of the stomach, and so lead to ulcer.

Again, there is something most suggestive in that extraordinary disease known as idiopathic hematomia auris, which is seen not infrequently in the insane, which invariably appears in the concha, rapidly reaches maturity, and disappears only after destruction of tissue and marked cicatricial deformity. It is interesting to note that the affection has been seen occasionally in those having no mental disease, or other known disability.⁴⁹ In a recent paper on this subject, Dr. H. G. Matzinger refers to the complex nerve-supply of the ear, with especial reference to the sympathetics, and concludes that othematoma is a neuropathic affection, seen generally, but not invariably, in those suffering from central nerve disease, in which the sympathetic system is seriously involved. Why might not some similar process have for its local expression the posterior wall, or lesser curvature of the stomach near the pylorus, than which no part of the economy has a more complicated and involved innervation?

One is led also to think of the striking manifestations in that curious affection, Raynaud's disease, with its predilection for the fingers and toes, with its advancing steps of syncope, asphyxia, and necrosis of the parts.

It is not impossible that asphyxia of certain spots of the gastric mucosa may occur from analogous causes, whatever they may be, and the tissue thus put to a disadvantage would be well calculated to suffer erosion from the active gastric juice.

If Morvan's disease is not found to be a phase of syringomyelia, it also might be advanced as an instance of local necrosis, something like that which may appear in the stomach.

A few years ago I saw at the clinic of my colleague, Professor Roswell Park, a case of intense interest, that of a neurotic girl, who had a series of painful and persistent ulcers along the forearm and the leg, following the tracts of certain nerves. The parts bordering the ulcers were uninvolved, and in every way healthy; the ulcers themselves followed the appearance of limited gangrenous spots; they were deep, with abrupt walls, and were exquisitely sensitive. They had for years resisted the treatment by very able men, but those on the arm were permanently cured by a thorough stretching of the external cutaneous nerve, practised by Park. There was something about the appearance of these ulcers that reminded one of the typical round ulcer of Cruveilhier, and it does not seem to me absurd to suppose for the latter a somewhat similar origin.

In concluding this view of the subject, it appears natural to assume that the stomach, like other parts, may suffer loss of substance from a variety of causes; but as regards simple round ulcer, it must have a more precise and definite etiology.

Unquestionably, the impoverished condition of

the blood, leading to lowered resistance of "the living cells," and the persistent presence of hyperchlorhydria, must of necessity put the tissues to severe strain—but there is wanted yet another factor. The object of this paper is to suggest that, by the influence of some process analogous to herpes, or to idiopathic hematoma auris, or to Raynaud's disease, or to herpetic gangrene—some distinct and persevering nerve-perturbation—we may best explain the recognized but unaccounted-for feature of the clinical history as to location, age, and sex.

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**PNEUMOTOMY TWICE IN THE SAME PATIENT
FOR THE RELIEF OF TUBERCULOUS
ABSCESS AND GANGRENE OF THE
LUNG; RECOVERY.¹**

BY JOHN BLAKE WHITE, M.D.,
PHYSICIAN TO CITY HOSPITAL, ETC., NEW YORK.

UP to a period not quite twenty years ago the annals of surgery had been silent respecting operative procedures on the lungs. Dr. Rickman J. Godlee, a well-known authority on this subject, regards surgical treatment of pulmonary cavities as still in its infancy, but believes that in a certain class of cases the measure will advance in efficiency as it will assuredly in frequency. It is quite true, nevertheless, that the great Father of Medicine two thousand years ago referred to abscesses located within and without the lung-structure, and even defined the point of selection for operating and draining them; but we owe to Estlander the credit of first originating and establishing, in our day, surgical treatment for defined diseases of the lungs.

In this class of cases prompt and correct diagnosis is a condition essential to cure. As soon as the character of the case is determined, operative procedure should be instituted without delay—as, while it is quite true that ordinary abscess of the lung may terminate in recovery, no case of gangrene of the lung has been known to recover without surgical interference.

Before describing a remarkable case of recovery from gangrene of the lung, through surgical resort, in my own experience, I deem it appropriate to briefly allude to a few selected experiences related by other surgeons in the same direction; and I purposely exclude all empyemas, confining my remarks exclusively to strictly pulmonary abscesses.

Morton, of Philadelphia, in his work on *Consumption*, in 1837, has related a very interesting case of tuberculous abscess of the lung, communicating by a fistulous canal with an abscess on the back, resulting in death, which, if treated with our present knowledge and boldness in managing such cases, would in all probability have terminated in recovery.

The patient was admitted to the hospital February 1, 1833. During the previous year he had had a slight cough, and severe pain between the shoulders, especially on the right side, accompanied by hemoptysis. The pain continued, and after a time a swelling appeared on the right side of the

¹ Read at the meeting of the New York State Medical Association, held in New York, November 15, 16, 17, 1892.

chest posteriorly between the base of the scapula and the spine, and this continued to increase in size.

After two months the symptoms became aggravated, active hectic set in, and the expectoration was profuse and purulent, with occasional hemoptysis. Anorexia, emaciation, and great debility supervened. The tumor was elastic, evidently containing air, and was tympanitic on percussion. Treatment by internal medication for six weeks resulted in no improvement, till the apex of the tumor ruptured spontaneously, discharging a large amount of fetid pus of the same character as that expectorated. The opening was then enlarged and a pint of pus escaped; the patient obtained great relief, but the case being left to Nature entirely for so long a time, the benefit was but temporary; the patient in four days became delirious and died, no doubt from septicemia. At the autopsy a fistulous opening was found extending directly from the pulmonary cavity to the dorsal abscess.

Dr. Samuels¹ has related the history of a patient at the London Chest Hospital, who came complaining of cough, pain, and dyspnea. On examination he found absence of chest movement of the left side, with anterior and posterior dullness, tubular respiration, and increased vocal fremitus. The temperature rose in a few days to 103.8° and soon fell again. Night-sweats and free fetid expectoration very soon set in. Upon inserting an aspirating needle between the fifth and sixth ribs two ounces of fetid pus were withdrawn. At the point of puncture tumefaction followed, so that a free incision was subsequently made, liberating about three ounces of pus. The cavity was washed out and drained. Subsequently a portion of the seventh rib was resected and a cavity the size of an orange was discovered in the lung. The patient suddenly died on the fourteenth day in an attack similar to an epileptiform seizure, followed by paralysis of the right arm.

Dr. A. V. Meigs² has reported the case of a boy, eight years old, who had been ill for three years, commencing with an acute attack in which an abscess of the lung developed. Examination of the right lung revealed dullness in the region of the third rib, with a cracked-pot sound, extending down to the liver. The respiratory sounds were harsh; expiration was prolonged at the base of the lung posteriorly, where the respiration was feeble and harsh, with dullness over this area also. Large quantities of pus were expectorated after violent paroxysms of coughing. Dr. Meigs believed from the symptoms and the distinctly clubbed fingers that there was a cavity in the chest containing pus. An incision was made, free drainage established, and the patient recovered.

The following case of gangrene of the lung cured by a surgical operation has been reported by Drs. Paul and Perier:³

A man, aged fifty-eight years, was attacked in June, 1891, by a severe bronchitis, soon resulting

in fetid expectoration. The presence of a focus of disease was revealed on auscultation, situated over the middle of the left lung, and characterized by a large zone of very fine râles. Antiseptic inhalations were resorted to, without preventing the progress of the disease, which evinced all the symptoms of gangrene. By December, symptoms of septicemia became alarming. Cavertous sounds were most intense over the second intercostal space. Dr. Perier made an incision through the intercostal space and pleura, seized the lung with a pair of fine forceps and kept it in contact with the parietal pleura. An incision was then made into the lung, which showed healthy tissue; a Lister forceps was thrust into it in the direction of the abscess and withdrawn with the blades expanded so as to leave a free exit to the pus. On introducing the finger a round opening was felt. This cavity was dressed, after cleansing with a cotton tampon soaked in a solution of one per cent. of chloral, and afterward touched with camphorated naphthol. Two drainage-tubes were inserted side by side and the wound closed. Air circulated through these tubes freely at each inspiration and expiration. The fits of coughing ceased at once, the odor disappeared from the sputa, and fever subsided. Improvement progressed steadily. Two weeks after the operation the drainage-tubes were replaced by a piece of salol-gauze, and at the end of seven weeks the wound had healed and the patient was completely restored to health.

Dr. Runeberg,¹ of Sweden, has described a case of successful pneumotomy for pulmonary abscess following pneumonia, and he has collected the reports of eleven cases similar in character. Discarding three of the eleven cases on account of uncertainty of diagnosis, five of the remaining eight recovered, three resulted fatally, though not as a result of the operation. He believes pneumotomy indicated when the diagnosis is clear and the abscess is accessible; but he deprecates the use of antiseptic irrigations, and thinks thorough drainage sufficient. Among other authorities may be mentioned Dr. Arthur Neve,² who has reported a case of abscess affecting the upper and anterior part of the right lung successfully operated upon. Drs. Bearman and Pengrueber³ have reported a case operated upon for the relief of an abscess located in the middle portion of the right lung. Thiriar⁴ has operated upon a case successfully for the relief of an empyema communicating with an abscess-cavity in the right lung. Dr. Pasteur⁵ records a very interesting case of gangrene of the lung in a boy seven years old, which was subjected to operation. The amount of repair which took place under unfavorable circumstances was most encouraging, though the case proved

¹ London Medical Record.

² London Lancet.

³ New Orleans Med. and Surg. Journal.

⁴ La Semaine Médicale.

⁵ London Lancet, Oct. 20, 1889.

¹ Medical Press and Circular, 1887.

² Archives of Pediatrics, 1887.

³ Bulletin de l'Académie de Médecine.

fatal. He expresses the opinion that an operation performed earlier might have saved the patient's life.

A very interesting case of pleuro-pneumonia, followed by gangrene of the lung and abscess, upon which he operated with success has been reported by Okell.¹

The following case of abscess of the lung, reported by Dr. Francis Huber,² terminating in recovery after operation, is also of interest:

A boy, four years of age, had been ill for nearly a month. When first seen, October, 1888, he had fever, irregular chills, and distressing cough. Physical examination proved negative, except as to the presence of an area of flatness, with distinct bronchial breathing, in the right infra-clavicular and mammary regions. Pus was obtained by an exploratory puncture. When an incision was made, pleural adhesions were found, and pus was discovered in the substance of the lung. The cavity, having been drained, subsequently contracted, a small fistula remaining for about ten months. Some difficulty was experienced in locating the cavity after the thorax was opened. No bad results followed irrigations of the cavity; forcible injections, however, occasioned paroxysmal coughing, which ceased when the injected fluid was expectorated—indicating its admission into a bronchial tube.

The 8th of April, 1890, Miss A., aged thirteen years, having a tuberculous family history, was attacked with croupous pneumonia, involving especially the right lung. During this illness she was under the care of Dr. T. A. Pease, of Norwood, N. Y. At a critical juncture she was seen in consultation by Dr. J. Reynolds, of Potsdam. The case ran a favorable course, and, as Dr. Pease reported, reached a crisis on the morning of the ninth day after the attack, when resolution set in, and the patient rapidly recovered. The temperature, circulation, and respiration became normal within three weeks. After recovery there remained no cough and no expectoration, except that resulting from chronic catarrh of the air-passages, to which she had been subject since she was three years of age.

At the end of the second week of convalescence the pyrexia returned, the temperature rising to 102° F.; the respiration became more labored, the cough spasmodic, the expectoration difficult and scanty, and the pain and tenderness about the side affected more pronounced. Dulness upon percussion now extended from the angle of the scapula upward until it involved the entire lower half of the lung, both anteriorly and posteriorly.

The case was now believed to be one of interstitial pneumonia, with fibroid degeneration and infiltration. This condition, with temporary improvement and relapses, and with marked disturbance of

the digestive functions, continued until the case passed out of the hands of Dr. Pease.

The care of the patient next devolved upon Dr. Reynolds, of Potsdam, who continued attendance until January 1, 1890, when the patient was taken to the Adirondacks for several weeks, whence she was brought to New York. Soon after her arrival in New York I was summoned to see her, and upon examination I found her suffering from an acute broncho-pleuro-pneumonia, engrafted upon an old unresolved pneumonia, which had degenerated into a fibrosis of the right lower lobe, involving part of the middle lobe. She was under my care about two weeks. After she had recovered sufficiently from the attack, she was carried to Thomasville, Georgia, where, under the care of Dr. Cortelyou, she remained until the end of the following spring, when she returned to Norwood. Soon after her return home she was again placed under the care of Dr. Pease, from whom I received the following account of her condition:

"Miss A. coughs less than before her trip South, and her respiration is improved, though marked dulness is present over the central portion of the right lung, with loud, moist râles heard on auscultation. Last evening she was brought into my office retching, vomiting, coughing, and expectorating an intolerably fetid, greenish matter. She continued to expectorate a large amount of this offensive sputa, and was frequently harassed by violent paroxysms of coughing, accompanied by violent irritation of the fauces, with frequent emesis."

All internal remedies, judiciously and skilfully employed by Dr. Pease, having proved unavailing, and the case intensifying in gravity, a consultation was determined upon, and I was called to Norwood. On my arrival, July 26th, 1890, I proceeded to examine the patient, and Dr. Pease and I came to the conclusion that a large area of the right lung had become gangrenous, that an abscess had resulted, communicating with a bronchus. An exploratory puncture was made, which resulted in fortifying the conclusion we had arrived at. The patient presented a pinched and extremely cachectic appearance—indeed, her condition seemed in every respect so critical that we thought no time should be lost, and decided to operate at an early hour on the following day.

Assisted by Drs. Pease and Larkin, the patient being put under the influence of chloroform, I proceeded to make an incision in the sixth intercostal space, about one inch anteriorly to the axillary line. The different layers of tissue, including the pleura, were in turn divided, and a careful examination of the seat of lesion was made. The finger was pushed through the intercostal space, and came in contact with the smooth outer surface of the condensed lung. A fluctuating point was discovered, into which the knife was directed. This liberated about two ounces of very fetid pus, having the same odor as that which had been expectorated. The wound was next irrigated with an antiseptic solution, a drainage-tube was inserted, and antiseptic dressings were applied.

The patient slowly rallied, with the aid of hydropoderiatrics of brandy and digitalis. There was

¹ London Lancet, 1888.

² Archives of Pediatrics; THE MEDICAL NEWS, October 17, 1891.

immediate relief of all distressing symptoms, and after a few days of depression she began to improve, and continued to gain strength until the discharge ceased.

The cavity continued to drain until, at the expiration of two months, the discharge was so much reduced that it was judged expedient to remove the tube. A month after the removal of the tube urgent symptoms set in. Distressing paroxysmal cough, fever, and greenish fetid expectoration, so offensive in character that it often excited nausea and vomiting, again imperilled the patient's life.

Dr. Pease discovered an area of dullness on the posterior aspect of the lower lobe of the right lung, and again summoned me to visit the patient, which I did on the 22d of September, 1890. Upon examination, I found quite a favorable condition about the seat of the previous operation, but discovered a region of decided dullness in the posterior part of the lower lobe, extending under the angle of the scapula upward. An operation similar to the first appeared necessary. With the assistance of Dr. J. Reynolds, of Potsdam, and Drs. Pease and Larkin, of Norwood, I reopened the thorax an inch posteriorly to the axillary line, meeting with the same condition of the lung as at the first operation. On opening the cavity, several ounces of very fetid pus escaped, with fragments of necrotic tissue, and a piece of gangrenous lung-tissue, having the appearance of the remains of a well-defined ruptured bronchus. A good-sized soft-rubber tube was inserted, and after thoroughly washing the wound with an antiseptic lotion, appropriate dressings were applied. For three weeks the pus, which drained freely, was very fetid, but the patient was immediately relieved of cough, expectoration, and septicemic symptoms.

Air circulated freely through the drainage-tube, upon both inspiration and expiration, and often during the process of irrigating the cavity the antiseptic solution would be coughed up.

The drainage was kept up for a period of eight months before the tube was removed. The patient is now restored to a condition of health superior to that enjoyed in early childhood—two years having elapsed since the last surgical procedure. Dr. Pease wrote me that menstruation, which had been arrested during her illness, became reestablished the November following the last operation, and was accompanied by a marked disturbance of the whole system. The clubbed finger-nails which had so disfigured her hands had disappeared. She is able to take a full amount of exercise, and her present physical condition is one of perfect health. In this case regular irrigations of a mild solution of hydrogen dioxide were practised with much benefit.

There is every reason for the exercise of great care and caution in the irrigation of pulmonary cavities. The danger of the frequent and indiscriminate irrigations of pus-cavities in the lungs is strikingly shown in the case reported by W. Pasteur,¹ of London, in which the patient was signally relieved by the operation, but sank rapidly on the tenth day.

¹ British Medical Journal, October 20, 1888.

Bowditch, of Boston, condemns too diligent washing out of pus-cavities, pulmonary and pleural, an opinion which meets with my support; and he further ventures the statement that the proportion of cases in which irrigation might be required is possibly one in four hundred. I am, however, of the opinion that in gangrenous cavities, such as the one under consideration, irrigation is safer than in cavities emitting more laudable pus. I have in consultation seen an instance of metastasis to the shoulder joint promptly follow irrigation of a pleural pus-sac, which occasioned a most serious involvement of the joint, requiring an operation for its relief. The patient, however, ultimately made a good recovery, without any impairment of the use of the joint.

In the performance of all operations on the lungs the strictest and most diligent observance of antiseptics should be unfailingly carried out.

Cases of gangrene of the lung are never too far advanced for surgical interference, even though presenting evidences of profound septic contamination.

Spillman and Haushalter consider it necessary to excite adhesion of the pleura before operating, but I do not consider this an essential procedure; and though it may be a more favorable condition under which to operate, delay for pleural adhesion to occur might prove, in some instances, decidedly unsafe. Resection of a rib is seldom required in the very young, except to facilitate the discovery of abscess in doubtful cases.

A corrugated white-rubber tube, to the value of which my attention was called by Dr. E. H. Grandin, better meets the requirements in these cases than the ordinary soft-rubber drainage-tubes commonly made use of. The former do not so readily yield to the pressure of granulation-tissue, and, therefore, maintain drainage more satisfactorily and for a longer time.

1013 MADISON AVENUE.

MITRAL STENOSIS IN PREGNANCY; WITH - CASES.

By Z. J. LUSK, M.D.,
OF WARSAW, N. Y.

THE question as to matrimony with women having unmistakable organic disease of the heart can admit of but one answer, and that emphatically in the negative. Rarely is a physician's consent or advice sought by the contracting parties, for the very good reason, in the first place, that nearly always the disease is unsuspected, there being no signs denoting a perverted state of the health; and secondly, if there were such signs, the young Juliet would prefer

¹ Read at the meeting of the New York State Medical Association, held in New York, November 15, 16, 17, 1892.

taking the chances of married life, rather than the opprobrium of ultimately evolving into that state which bears the euphonious title of "old maid."

Under the subject of *Cardiopathia and Pregnancy*, Dr. Parvin¹ quotes Jaccoud as asking the question, "Has the patient suffered from a cardiac lesion?" "If she has never suffered, he sees no reason to forbid marriage," but adds, "Her social condition must be considered." "If she has to work during pregnancy there is much to be feared, but if she can be properly cared for, follow medical advice, and pass the last half of her pregnancy in almost absolute rest, she may marry." Jaccoud further relates a case in his private practice, in which a "young lady had for eighteen months ardently desired to marry, and that, had a negative answer been given, mortal syncope might have followed." The fallacy of such an argument is too apparent. The chances of mortal syncope following a refusal to permit marriage would be more favorable than those of syncope attending the cardiopathies in the pregnant state. The augmented duties of the married woman, the painful consequences following pregnancy and maternity, and the alarming infant-mortality—all of these should be sufficient to dissuade the most sanguine, and to clear all doubts about entering upon the married state. It would be a great error to assume that a woman could safely marry if not at the time suffering from the valvular disease, nor would her environment permit of favorable consideration.

If stenosis of the mitral valve is present, serious trouble will certainly develop as soon as the heart is called upon to perform the increased work incident to the last months of pregnancy. The demands upon the maternal system begin about the sixth month; subsequently to this time great changes continually occur. The enormous development of the gravid uterus, with its intricate vascular apparatus, as well as the growing fetus, calls for an increased amount of blood, the normal constituents of which are undergoing change, the solids diminishing while the liquids increase in quantity. While there is an augmented supply of blood,² "the frequency of the pulsation of the heart remains unchanged. For this alternate contingency dilatation of the cavities becomes a necessity, and for the same reason, arterial tension is increased." It is plainly evident that the hitherto weakened heart must begin to show evidence of overwork.

Mitral stenosis is essentially a disease of women and children, and the diathesis to which a majority of cases owe their origin is the rheumatic. It may in some instances owe its etiology to chorea from neurotrophic disturbances. Loomis³ asserts that

such cases are confined to children, and recover after a few years. Duroziez¹ discourages the theory that mitral stenosis, pure and simple, is of rheumatic origin, and records eight cases occurring in children, but adds that they were subject to rheumatic attacks later in life.

The object of this paper is not so much to discuss the etiology of mitral stenosis, as to consider the management of such cases when they occur to us in actual practice. They are almost always emergency-cases, desperate in character, and demand the best energy and the most prudent management of the physician. Fortunately they are of rare occurrence. In the last eighteen years I have had upward of twelve hundred cases of labor, and among this number only two of mitral stenosis. There have been the usual number of those who gravely assert that they have heart-disease and cannot take anesthetics. There are also cases in which physicians have accepted the statements of patients, without making careful physical exploration, and thus often nourish the belief that there is organic trouble, when careful examination fails to discover the physical signs, and their long-cherished ideas are exploded. Sir Andrew Clark describes six hundred and eighty-four cases of valvular disease occurring in his private practice in the year 1887, and says that "in a large majority of these cases the disease was unsuspected."

The symptoms of mitral stenosis are few. The most characteristic phenomenon is described by Loomis³ as a loud churning, grinding, or blubbery presystolic murmur. It is of longer duration than any other cardiac murmur, on account of the time required for the blood to pass through the narrowed and obstructed orifice. It ends with the commencement of the first sound. The apex-beat is synchronous with the purring thrill. The murmur is heard with maximum intensity a little above the apex-beat.

CASE I.—On May 5, 1890, I was called to see Mrs. K., a primipara, aged thirty-one, well developed, and weighing about 135 pounds. The environment was all that could be wished. I was informed by her husband that she was seven and a half months advanced in pregnancy, and that she had been unusually well until about a month before, when she began to have gastric disturbance, more or less nausea, with the bowels constipated, and not readily responding to laxatives. I learned that her brother (who was a graduate of the University Medical College of New York, but not at the time engaged in the practice of medicine) had occasionally seen and advised her. Indeed, up to this time no other medical aid had been sought. I found the patient sitting up, pale, and complaining of intense nausea, almost con-

¹ Annual of the Universal Medical Sciences, 1888, vol. i, p. 192.

² Lusk's Midwifery, p. 98.

³ Pepper's System of Medicine, vol. iii, p. 666.

¹ Annual of the Universal Medical Sciences, 1888, vol. i, p. 192.

² Pepper's System of Medicine, vol. iii, p. 668.

stantly retching, and occasionally vomiting whitish mucus tinged with bile. The stomach rejected everything taken, even to water. The pulse was rapid and weak, the respiration hurried, the tongue moist and covered with fur, the breath offensive, and the bowels had not moved for several days. She also complained of sleeplessness. I advised an enema of warm water and soap, a sinapism applied over the epigastrium, cracked ice p. r. n., and also prescribed small doses of fluid extract of ipecacuanha, gtt. xv to half a glass of water, and of this gave a teaspoonful every fifteen minutes. This has often relieved the distressing nausea of pregnancy when other remedies have failed. To the question whether she had any heart-disease she gave a negative answer, and said that if her bowels could only be relieved she would be all right. I also left a powder of sulfonal to give her sleep.

On the following day her husband informed me that the enema had been followed by negative results; that the nausea was better; she had rested better and was more cheerful. I was requested to consult with her brother, Dr. Gouinlock, whose idea of the case was that she had worn very tight-fitting corsets and that she was now paying the penalty, the gravid uterus encroaching on compressed organs, and he knew of nothing to relieve her condition. I advised pil. cathartic. co. to move the bowels, and potassium bitartrate, a teaspoonful in a glass of water, and of this a dessertspoonful once in two hours. I did not see Mrs. K. at this time, nor again until Friday evening the 8th, when I was hastily summoned. I found the patient in bed, very much exhausted, the countenance pale and pinched, the pulse 130, rapid and weak, the respiration 38, and constantly retching. Dyspnea was marked. There was no edema of the extremities. Dr. Gouinlock was present. I advised a hypodermatic injection of morphine and atropine, gr. $\frac{1}{4}$ and $\frac{1}{16}$. Dr. Gouinlock informed me that the family was very susceptible to the effects of morphine, and objected to giving more than one-tenth grain. I considered that her condition of extreme prostration required more heroic treatment, and advised the repetition of the dose until complete quiet was secured. No examination of the heart was made at this time; the patient was very restless and tossing about in bed. The urine showed no traces of albumin. Dr. Gouinlock was left in charge of the patient during the night. I was hastily called again about 1 A. M., and was told that Mrs. K. had had a sinking spell. On arrival, I found her unconscious, the face and extremities bathed in cold perspiration, and in extreme collapse. There was no pulse at the wrist, and the respiration was slow and intermittent. I learned that she had continued restless up to a few moments before, when suddenly the head drew back, the body became rigid, and she had a regular tonic spasm. She was pale and colorless; the heart was now beating and pounding tumultuously; nothing but a churning sound could be heard.

At this juncture Dr. M. D. Mann, of Buffalo, N. Y., was summoned by special train, and arrived in about two hours. In the meantime I began the administration of chloroform, the color grad-

ually returning to the face, the heart becoming steadier, the pulse appearing at the wrist, and when spoken to the patient moved the eyes and apparently became conscious. On examination of the heart there was a loud presystolic murmur, with an occasional clacking sound. On palpation a distinct purring thrill was communicated to the hand. Digitalis and brandy were given hypodermatically. Under this treatment her condition continued to improve and things began to look more hopeful, when suddenly the eyes were drawn upward, the head backward, and tonic spasms of the whole body followed, lasting about two minutes. Respiration became apparently suspended. The beating of the heart became loud and tumultuous, cold perspiration again appeared upon the face and extremities, and she had every appearance of rapidly sinking. The muscles, however, soon began to relax, and under chloroform-inhalation the heart became less tumultuous, and color again returned to the face. I repeated the former treatment. At this time I made examination *per vaginam*, and found the os dilated, easily admitting the middle and index fingers. Chloroform was administered and I began dilating the cervix, which yielded readily. In the meantime Dr. Mann arrived, verified my diagnosis, and continued the treatment. About 4 A. M. another spasm ensued, lasting about one minute. The patient rallied slowly from this. Dr. Mann continued the dilatation, and when sufficient to permit, he applied Tarnier forceps and she was soon delivered of a stillborn male child. The patient did not rally, but gradually sank and expired about 5 A. M.

CASE II.—Mrs. H., primipara, a well-developed Englishwoman, twenty-nine years of age, had one miscarriage two years before at three and a half months. Her husband was in poor circumstances and she was obliged to work. She was seven months advanced in pregnancy, and had been doing well until two weeks before, when she had an attack of fainting, as she termed it, and following this she had nausea and vomiting, which continued up to the time I was called. She had also been troubled with a hacking cough. Her tongue was moist and covered with brown fur, the breath was very offensive; the bowels constipated; the pulse 140, the rhythm being regular. Dyspnea existed, and she also complained of sharp pain in the precordia. On palpation there was a distinct purring thrill communicated to the hand and diffused over the apex. There was no increased area of dullness. Near the apex a loud, prolonged presystolic murmur could be heard. The apex-beat was synchronous with the purring thrill. Dr. Loomis¹ holds that the diagnosis of mitral stenosis depends upon the existence of two physical signs, viz., "the purring thrill and a loud, long blubbery presystolic murmur."

Examination *per vaginam* found the os slightly dilated, easily admitting the index finger. The patient was put to bed, an enema prescribed to move bowels, and morphine, gr. $\frac{1}{4}$, atropine, gr. $\frac{1}{16}$, were given hypodermatically, with fluid extract of ipecac, gtt. xv, in half a glass of water, a teaspoonful every

¹ Pepper's System of Medicine, vol. iii, page 667.

half-hour as required. Brandy and digitalis were also ordered. I called again on the morning of the 12th and found her condition better; the bowels had moved, and nausea was not as obstinate. I continued the remedies, adding aromatic spirit of ammonia. On the morning of the 13th there was less dyspnea; the pulse was 120; vomiting was less frequent; the temperature was 99°; and the heart's action was less tumultuous. She continued to improve until the 25th, when I discontinued daily calls. I had advised the family fully of her condition and the necessity of keeping her quiet. I was hastily summoned on the night of the 6th of January, being informed by the messenger that she had been doing some light work. On arrival I found her in complete collapse, the heart pounding tumultuously, with no pulse at the wrist, the face pale, and with an anxious expression. The respiration was rapid, and there was every indication of impending dissolution. I gave at once a hypodermic injection of brandy and digitalis, ordering hot-water bottles to the extremities, and commenced the administration of chloroform, upon which color very soon began to return to the face, the heart became less tumultuous, the pulse returned to the wrist, and the patient began to show signs of consciousness, and noticed things; and in the course of an hour we were able to give by the mouth brandy, ammonium carbonate, and digitalis. I remained with her all night. She had three slight attacks of syncope during that time, when chloroform was again given, and was always followed by amelioration of the distressing symptoms. The tumultuous and angry heart would at once become more quiet and regular. In none of the later attacks did she become unconscious.

I saw her several times on the 26th, continued the treatment, and the nurse was instructed to administer chloroform when syncope threatened. She rested comfortably during the day, having two or three slight fainting spells, but was generally better. The pulse was 120, respiration 30, temperature 99°, and the obstinate nausea was controlled by morphine and atropine. Nutritive enemata were advised, the brandy, ammonium carbonate, and digitalis continued. On the morning of the 27th the nurse said that the woman had slept some during the night, had had only one attack of fainting; the pulse was 126, the respiration 32, the temperature 99°. At this time she complained of a good deal of nausea and dyspnea. She said that she had felt no motion for two or three days. I found the os dilated, easily admitting two fingers. There was a vertex presentation, but no evidence of fetal life existed. I advised continuation of the remedies during the day. Her condition in the evening was less satisfactory; the pulse was weaker, 130; there was marked dyspnea; the respiration was 40, the temperature 99.8°. She complained of pain through the back. The nurse said that she had had slight chills during the day. The os was now dilated two inches, the cervix soft and yielding. I called again in about two hours. The pains had increased in the meantime and were unmistakably uterine. Hypodermic injections of digitalis and strychnine were repeated every two hours. I now began adminis-

tering chloroform, but not at any time in quantities to produce full anesthesia. Under its influence I hastened dilatation of the cervix, and when sufficiently dilated I applied forceps and delivered a female child that had been dead for several days. Once or twice during these maneuvers I was obliged to stop, on account of the patient fainting. Although extreme prostration followed, she gradually rallied under treatment. The convalescence from about the 10th day continued satisfactorily, and the patient was able to be about and attend to household duties in about six weeks.

Both cases had had attacks of rheumatism in childhood, but were not aware of any cardiac lesion.

It was said of the first case that she had suspected heart-disease, and had said that she would not allow herself to be examined for that trouble. I did not on my first visit examine the heart, though I should have done so. "Experience sometimes teaches dear lessons." It does not matter what the condition of the pregnant woman may be, or at what period he is called, the physician ought always to examine the heart and thus be prepared for any emergency, or indeed, if possible, to prevent an emergency likely to occur. I was dissuaded by the assurance that she had no such trouble, attributing her prostration to lack of sleep and to the obstinate vomiting. The cases of Sir Andrew Clark sufficiently prove the fallacy of accepting the statements of patients.

I believe that the only safe treatment prior to the fifth month in cases in which mitral stenosis is present, is in producing abortion. Dr. Mann fully concurred in this opinion. In both cases there was no impairment of health before the sixth month. It is at this time that heart-weakness begins. If the pregnancy is allowed to proceed, the chances are that the fetus will not survive the last two months. Children whose mothers are the victims of cardiac disease are often imperfectly developed, and are predisposed to untimely death.

The salutary effects of chloroform cautiously administered, especial care being taken not to push it to full anesthesia, were most perceptible. In both cases the pulse was at times small in volume, feeble in force, and irregular in rhythm; respiration was irregular, the heart tumultuous in action. Under the chloroform-stimulus the pulse would reappear at the wrist and color return to the face. While these effects were temporary, it gave opportunity to apply other and more permanent medication.

In closing, let me say that:

1. In all cases of pregnancy the physician should make a thorough examination of the heart at the first visit.
2. If mitral stenosis is present, and is recognized before the fifth month, the only safe treatment is in producing abortion.

3. If the sixth month has passed, the patient must remain perfectly at rest. The secretions must be closely watched, the husband or nurse instructed in the use of chloroform, and the patient must be under the constant care of a physician.

CLINICAL MEMORANDA.

OBSTRUCTION OF THE BOWEL FROM MECKEL'S DIVERTICULUM—A CHOLECYSTOTOMY.

BY J. A. PRINCE, M.D.,
OF SPRINGFIELD, ILL.

ON the 17th of last March, Bertha P., aged four years and three months, while putting on her clothes, was suddenly seized with acute lancinating pains, referred to the umbilicus. For three days previously she had complained of occasional pain in this region. Obstruction of the bowels soon became manifest, and was complete. On March 23d, I was called by the attending physicians, Drs. Mudd, of Athens, and Williamson, of Cantrall, to operate. Drs. S. M. Stocker, of Duluth, Minn., and N. S. Penick, of this city, accompanied me.

Her physicians stated that every means known had been employed to produce an action of the bowels, but without success. Opiates had been freely administered to control pain, which had been constant and excessive. During the three days preceding my visit, stercoraceous vomiting had been present. The temperature had ranged from normal to 100.5°, and the pulse from 108 to 137. The abdomen was tympanitic and tense, though not greatly distended.

One inch to the left of the umbilicus was an indurated area about two inches in its vertical diameter, by an inch and a half in its transverse diameter. Pressure over this area caused pain. A diagnosis of intussusception was made, and operation was advised. I explained to the parents and friends the dangers of the operation, and the almost certain prospect of a fatal termination without surgical interference. The proposal was accepted, and I proceeded without delay. An incision was made in the median line, and upon opening the peritoneum a large amount of thin fecal fluid gushed out. The abdominal cavity was carefully cleansed by flushing with hot sterilized water. The point of obstruction at once came into view, and was found to be due to an encircling band, the tension of which was so great that it had accomplished an almost complete resection of the incarcerated loop, the distal end being entirely cut through, and the proximal end nearly so.

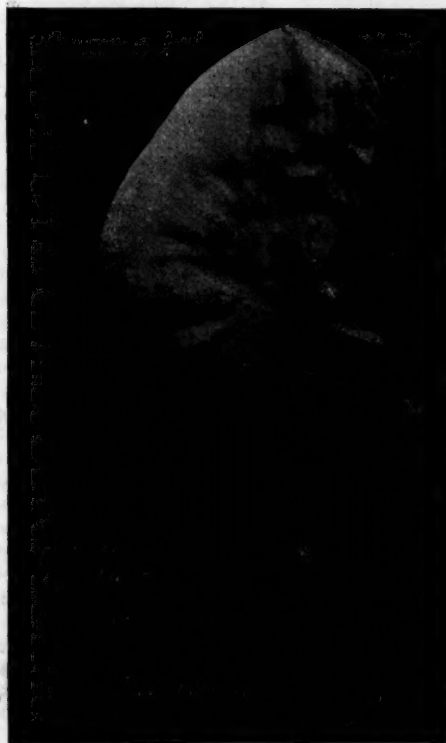
The resection of the loop was completed, the ends freshened, and an end-to-end approximation made; the abdomen was flushed, drained, and the wound closed. The operation occupied one hour. Death occurred two hours later, from shock.

As the condition of the patient was very bad during the operation, and we were compelled to work by the feeble light of a kerosene lamp, all haste possible was made, and the seat of the obstruction was not noted, nor was the character of the band ascertained until the specimen was examined at leisure.

The resected loop measured four inches, and was

from the lower portion of the ileum, though its exact distance from the cecum was not noted. From the side of the gut-wall projected a diverticulum of globular shape, one-quarter of an inch in diameter at its junction with the intestine; five-eighths of an inch in its greatest diameter, and one and a half inches long, ending in an elongated cord or band, which was impervious. The length of this band can only be estimated at about an inch, as it was broken in liberating the intestine, leaving one-half of an inch of its length attached to the diverticulum. This elongation was attached to the mesentery below the origin of the diverticulum, forming the incarcerating ring.

Meckel's diverticulum is rarely found to have this form, it being usually of a conical shape with its greatest diameter at its origin. Indeed, Treves says: "In no case, so far as I am aware, has it been seen to assume a polypoid form and present a comparatively narrow attachment." The cut shows well the diverticulum and its attachment.



The literature of this subject is very meager, the best descriptions that I have been able to find being in *Heath's Dictionary of Practical Surgery*, and Treves's little book on *Intestinal Obstruction*. Quain's *Anatomy* merely mentions the fact that a pouch or diverticulum may sometimes exist at a point in the lower ileum. To Treves I am indebted for the following description and facts:

Meckel's diverticulum is due to the persistence of the vitelline duct. When met with in its most perfect condi-

tion it exists as a tube, having a structure similar to that of the small intestine itself, that extends between the lower part of the ileum and the umbilicus. The length of this tube is, on an average, three inches. Sometimes it exists only as a nipple-like projection. On the other hand, cases are recorded in which the diverticulum, in the form of a free tube, attained the length of ten inches. The diverticulum is always single, and arises from the ileum, from one to three feet above the ileo-cecal valve.

In the majority of cases the end of the diverticulum is free. Very often, however, it is continued in the form of a solid cord. This diverticular ligament may break from its attachment to the parietes, and may float free within the abdominal cavity. Under such circumstances, however, it is much more usual for it to acquire fresh adhesions to some point of the peritoneal surface. These secondary adhesions of a free diverticulum, or of a diverticular cord at the extremity of one of the processes, are of considerable importance in the etiology of strangulation of the intestine. This secondary attachment is most often to the mesentery.

In twenty-three cases collected by Cazin, and nineteen by Treves, the attachments were as follows:

Near the umbilicus	10
" inguinal ring	1
" femoral ring	1
To the small gut	9
" cecum	3
" colon	1
" mesentery	17

CHOLECYSTOTOMY.

Mrs. D., aged thirty-nine years, was sent to me through the courtesy of Dr. Hobbs, of Mound Station, Ill. During the last four years the patient has suffered intensely from repeated attacks of biliary colic. Her physician found calculi in the stools after several of the attacks. When first seen by me, June 2, 1892, she was intensely jaundiced and greatly emaciated from much suffering. The attacks of colic were occurring as often as every week, and accompanied by a severe rigor, followed by high temperature, reaching 102° and 103°; the jaundice had of late been constant. I was unable to find calculi in the stools following attacks, after careful examinations repeated several times. As she was rapidly losing ground, and was in every way miserable, she readily consented to an operation, which was performed July 3d.

An incision four inches in length was made parallel to the lower margin of the liver, and over the gall-bladder, which could be indistinctly palpated; dense adhesions were encountered between the gall-bladder and the neighboring intestines, which were separated. The organ was much distended and contained calculi. It was sutured to the margin of the wound, and five days later was opened. Quite a quantity of clear, viscid fluid escaped, and about twenty-four calculi were removed. An attempt at this time to pass a probe into the duct failed; the orifice of the duct seemed to be completely closed. No bile whatever escaped from the bladder; during the healing process there was only the same clear fluid found on first opening the viscus. The discharge of this character, however, was quite profuse.

In four weeks she left the sanitarium, and two weeks

later the fistula had completely closed. For ten weeks following the operation she improved rapidly in health; she was free from pain, and the jaundice entirely disappeared. Then the old attacks returned, seemingly with even greater severity; she returned to me September 23d. Her jaundice had returned and her general health was much worse.

Recognizing that there must exist an obstruction below the gall-bladder, a second operation was advised, and carried out September 26th. One calculus was found in the gall-bladder, which, as before, contained only clear fluid. Upon careful examination a rounded body, as large as a good-sized marble, was found deep down under the surface of the liver; this was movable to a very limited degree. Crushing was attempted, first with the fingers and then with instruments, but for fear of doing damage to the tissues the attempt was abandoned. The duct was finally incised and the large calculus extracted with forceps. The wound in the duct was closed as securely as possible with a continuous fine silk suture. As the gall-bladder was somewhat mutilated, and evidently useless, it was excised, and the wound packed with iodoform-gauze. On the second day after the operation bile began to drain up through the gauze packing, and though the dressings were frequently changed, the clothing and bedding were often saturated. The wound healed rapidly, and at the end of four weeks had entirely closed, and she returned home. At this time (December 15th) she has remained free from any return of her trouble.

The calculus in this case must have been located in the cystic duct, completely closing it, and encroaching on the common duct to such an extent as to almost completely close it. During the first operation it was probably drawn back somewhat from the common duct by the manipulation upon the gall-bladder, allowing the free flow of bile. The weight of the calculus was thirty-eight grains.

JAMBUL IN THE TREATMENT OF DIABETES MELLITUS.

BY V. E. LAWRENCE, M.D.,
OF HALSTED, KANSAS.

In July, 1891, Mrs. L., widow, aged about sixty, presented herself, relating that for several months she had gradually been declining in weight and strength. Her tongue was moist and covered with a white coat; the saliva was frothy and slightly viscid. The skin, as she herself remarked, was dry and rough, and she complained of almost constant itching, especially marked in the vulvar region. The appetite was fair, but the digestion poor. She was fond of sweets. There was slight swelling about the ankles. Inquiry elicited the fact that about sixteen pints of urine were passed in twenty-four hours. About an equal quantity of water was drunk. An examination of the urine disclosed the presence of abundance of sugar. The specific gravity was about 1035.

The diagnosis being clear, the question of treatment presented itself. I explained to the patient the nature of her disorder, and wrote out for her the usual bill of fare used by diabetics, strictly prohibiting all articles of food likely to be deleterious. As to medicines, the

usual remedies were employed. Directions as to diet and treatment were faithfully followed. The patient improved somewhat. The amount of urine passed was smaller and the thirst was less annoying, but considerable inconvenience was experienced in regard to the restricted diet. While the urine was diminished in quantity, the specific gravity remained unchanged or rose, and the percentage of sugar remained unchanged. This treatment was followed for several months, when I became convinced that my patient would probably not receive any material benefit from the usual remedies and that the final issue of her trouble would be death.

I now determined to use jambul. All other medicine was discontinued, and the use of the jambul was commenced in about eight-drop doses of the fluid extract. The patient was directed to still persist in the avoidance of all articles of diet containing starch or sugar.

As the patient lived some miles in the country I did not see her again for about two weeks, when she returned to my office saying that she was much improved; that the quantity of water passed was much smaller; and that nearly all of the unpleasant symptoms had either disappeared or so diminished that she felt comparatively comfortable. She had become more fleshy, but desired very much to return to her usual articles of diet.

As a number of cases had been reported in which patients, even in the advanced stage of the disease, had been cured when little attention was given to the food eaten, I concluded to allow her to choose her own articles of diet. With this change, the treatment was continued. After two weeks she again returned, with the report that she still grew better and that the change of diet did not seem to be injurious, and that she ate starches as she wished, but was somewhat careful as to sugar.

An examination of the urine disclosed the presence of but a trace of sugar; and, later, even this disappeared. The patient continued the jambul for some weeks longer and then did not return. Since then I have seen her several times. She reports herself well and no longer has any symptoms of diabetes.

MEDICAL PROGRESS.

The Parasitism of Carcinoma.—METSCHNIKOFF (*British Medical Journal*, No. 1667, p. 1273) adduces evidence and presents argument in support of the close analogy between the coccidiosis of rabbits and carcinoma in man. He points out that in the livers of rabbits there are often present grayish or white nodules, with puriform contents, in which are found oval bodies known as coccidia—low forms of animal organisms. In young rabbits the presence of these lesions engenders a disease that often proves fatal, while full-grown rabbits tolerate the parasitism without suffering great harm. This disease, though infectious and parasitic, is never transmitted by true contagion. The nodules in the liver are formed by abundant vegetations of the biliary ducts, and are true tumors. The coccidiosis of rabbits is a miasmatic affection. In order to produce the disease in other rabbits the coccidia must undergo a certain transformation and segmentation. That coccidian infection occurs in man is demonstrated

by the discovery of the parasite of malaria. Like the coccidiosis of rabbits and like malaria, carcinoma presents miasmatic characters. It was the presence of epithelial proliferation in both the coccidiosis of rabbits and carcinoma in man that suggested the parasitism of carcinoma. Numerous observers have found in various forms of carcinoma cellular bodies presenting none of the appearances of degeneration of protoplasm or of nuclei. Careful examination disclosed a close resemblance between these bodies and the coccidia of the rabbit. The absence of contagious characters from coccidiosis and carcinoma may be ascribed to their miasmatic properties, the spores of the parasite being formed outside of the organism.

PLIMMER (*British Medical Journal*, No. 1667, p. 1277) reports the examination of specimens from thirteen cases of recent carcinoma, prepared specially, and also fifty-three specimens from thirty-seven cases of various forms of carcinoma, prepared in the ordinary way, and the finding of the specific parasite in all. The organisms were most abundant near the growing edge of the neoplasm and in the glands that had become secondarily affected; they were present in small numbers or not at all in parts of the growth that were undergoing degeneration; they were also wanting in the fibrous portions of the growth and in cells undergoing karyokinesis. The bodies were nearly quite round and possessed nuclei and capsules. There was evidence of the ameboid nature of the organism. The organisms were best demonstrated by first placing small pieces of perfectly fresh tissue for twenty-four hours in a solution made just before using, and containing equal parts of a 5 per cent. solution of potassium bichromate, and a saturated solution of mercuric chloride in a 0.75 per cent. salt solution; then washing in running water for twenty-four hours, and then successively placing them in 30 per cent. alcohol for twenty-four hours; in 60 per cent. alcohol for twenty-four hours; in 90 per cent. alcohol for twenty-four hours; when they were thrown into absolute alcohol until they were hardened. They were then imbedded in paraffin, cut and stained on the slide with the Ehrlich-Biondi triple stain, washed out with alcohol, cleared with xylol, and mounted in xylol-balsam.

Two Pubeotomies.—TÖRNGREN (*Centralbl. f. Gynäkologie*, No. 49, 1892, p. 953) has reported the case of a woman, forty years old, pregnant for the ninth time, and having a generally contracted pelvis, in which pubeotomy was performed. The first four children had been born spontaneously; the second child was born dead; the fourth weighed 6½ pounds. In the fifth labor version was performed, but the child was born dead, weighing 8 pounds. In the sixth labor, also, version was performed; there was some difficulty in delivering the head; the forceps was applied and withdrawn; the child weighed 7½ pounds, and lived. The seventh child was born spontaneously, and weighed 6½ pounds. In the eighth labor, version was performed, but the child died. The maternal measurements were as follows: Between the iliac spines, 8.27 inches; between the iliac crests, 10.39; between the trochanters, 10.97; Baudelocque's diameter, 6.73; diagonal conjugate, 3.92; true conjugate, 3.15. The vertex presented; the lesser fontanel to the right; the

sagittal suture in the transverse diameter. Pubeotomy was performed, and the child was safely delivered by means of axis-traction forceps. The fetal diameters were as follows: B.P., 3.65 inches; B.T., 3.08; O.F., 4.23; O.M., 5; S.B., 40.4. The child was 20 inches long, and weighed $6\frac{1}{4}$ pounds. The mother died twenty-two hours after the operation, in collapse. The post-mortem examination disclosed the existence of fatty heart, with hypertrophy of the right side; pulmonary emphysema; bronchitis; chronic nephritis. The second case occurred in a woman, thirty-six years old, pregnant for the second time, basiotripsy having been required in the first labor on account of a generally contracted pelvis. The pelvic measurements were as follows: Between the iliac spines, 8.85 inches; between the iliac crests, 10.39; between the trochanters, 11.55; Baudelocque's diameter, 6.16; diagonal conjugate, 3.65; true conjugate, 2.96. The vertex presented; the lesser fontanel to the left; the sagittal suture in the transverse diameter. The child was safely delivered by means of axis-traction forceps. The fetal diameters were as follows: B.P., 3.65 inches; B.T., 3.08; O.F., 4.62; O.M., 5; S.B., 4.23. The child was $20\frac{1}{4}$ inches long, and weighed $7\frac{1}{4}$ pounds. The woman got up on the twenty-first day.

Intubation.—BALL (*Lancet*, No. 3613, p. 1216) has reported twenty-two cases of intubation in children of from thirteen months to eight years old, with ten recoveries. The operation was performed in every case for the relief of symptoms of laryngeal obstruction, which threatened the life of the child, and as the alternative of tracheotomy. In one case the obstruction was a result of the swallowing of hot tea; in another, of swallowing carbolic acid. The others were cases of laryngitis, simple or membranous (diphtheritic); it was not always possible to determine which. In five cases the condition was secondary to measles; four of these died. In seven cases tracheotomy was performed after intubation had been tried, principally because the tube seemed to be obstructed by membrane or secretions; in all of these, death took place. In all the cases in which recovery took place the tube was left in the larynx for periods varying from three to thirteen days, the average period for the ten cases being eight days. In four cases the thread was permitted to remain *in situ*; in one of these the child removed the tube by means of the thread. In the remaining cases the thread was removed immediately after the introduction of the tube. In each of two of the fatal cases an ulcer was found on the anterior wall of the trachea, at a point corresponding with the lower extremity of the tube. The tubes, however, were not of exactly the same design as the O'Dwyer tubes. In one case death took place during the operation.

THERAPEUTIC NOTES.

Enormous Doses of Paraldehyde in a Case of Acute Mania.—At a recent meeting of the New York Neurological Society, DR. WILLIAM D. GRANGER reported the case of an unmarried woman, twenty years old, in a second attack of acute mania that had existed for six months. The previous attack had occurred five years before, and

was fully recovered from. There was a history of insanity in her father's family, and her mother was a "nervous" woman. The attack was of great violence, and attended with pronounced delusions and hallucinations. There was marked insomnia from the first. During her previous illness she was given large doses of paraldehyde, and with the advent of the first symptoms of the second attack, the same drug was administered. She was given each night ten fluidrams of paraldehyde, in divided doses, and this method of treatment had been kept up for nearly four months. It produced but little sleep, and that was broken. When the patient came under Dr. Granger's care, he found that in spite of her close confinement and the enormous doses of paraldehyde that she was taking, she was showing some evidence of convalescence. She was well nourished and had a good appetite. There was no gastro-intestinal trouble. She had no cutaneous eruption. A careful examination failed to reveal any unfavorable symptoms connected with the use of the drug, unless it was that it had lost some of its hypnotic power. After the third night, and against the wishes of the family, Dr. Granger determined to rapidly withdraw the drug, and he did so in ten days. After its withdrawal the patient was able to sleep soundly all night. No other drug was substituted. She suffered no inconvenience during the period of its withdrawal. In three months the patient was discharged, and she became perfectly well. No symptoms of the paraldehyde "habit" appeared.

The Treatment of Cholera with Anticholerin.—At a meeting of the Society of Physicians of Budapest, ANGYAN (*Prager medicin. Wochenschr.*, 1892, No. 49, p. 606) reported the results of the employment of anticholerin in nineteen cases of cholera of unusually severe type. Nine of the cases died—a mortality of 52 per cent. It was found that the remedy exerted a most beneficial influence upon the course of the disease. In some cases slight transient febrile reaction appeared. Most of the symptoms soon changed for the better, diarrhea and vomiting ceasing on the first or, latest, on the second day. Cyanosis, which would sometimes yield to hypodermatoclysis, frequently, however, to recur, disappeared permanently after the employment of anticholerin. The secretion of urine was resumed under the influence of the treatment, and soon attained respectable proportions; while in algid cases not treated with anticholerin the anuria would persist for three or four days. Although the number of cases was too small to lead to a final conclusion, the general impression was a favorable one.

An Antiseptic Adhesive Application.—

R.—Zinci oxidi gr. v.
Zinci chloridi gr. xxiv.
Gelatin. 3v.
Aquaë destillat. f 3j.—M.
S.—Apply topically.

L'Union Méd., No. 136.

Barium Chlorid for Epilepsy.—LISLE (*N. Y. Medical Journal*, lvi, 24, p. 654) reports the employment, with favorable results, of barium chlorid in doses of from gr. $\frac{1}{4}$ to gr. $\frac{1}{2}$, given every four hours, in the treatment of epilepsy.

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SATURDAY, JANUARY 14, 1893.

THE MECHANISM OF ANESTHESIA.

IT is, no doubt, a matter of considerable interest, if not importance, to determine in what manner anesthesia takes place—in short, to demonstrate the mechanism of it, or if we cannot go so deeply, to have some theory, which, if it does not explain all the facts, at least serves to point out the way toward something better.

To demonstrate the mechanism of anesthesia—to show both the causation and progression of the phenomena, and their dependence upon one another, in obedience to definite laws—is an august problem. Many have attempted to solve it, and in many ways. Some, relying on their great experience and practical knowledge, gained by extensive observation of the effects of anesthetics in surgical cases, construct a theory with these data alone. Others again, not neglecting these data, make them supplementary to a process of reasoning on the more pregnant facts of experimental physiology. To speculations of the latter kind we desire to direct the reader's attention, though we must observe that, much as these speculations are to be prized as real advances, they appear to us to fall short of the truth by ignoring a third series of facts—namely, the facts of psychology.

To CLAUDE BERNARD,¹ perhaps, more than to

¹ See his book entitled *Phénomènes de la Vie*, vol. i, p. 251.

any other, we owe our present knowledge on this curious subject. It was he that first developed, in a series of incomparable experiments, the surprising range of the anesthetic powers of ether and chloroform. Not alone animals, but also plants, the germinating ovule, the simplest of all organisms, the protozoa—in short, any organic body with protoplasm for its basis, may be anesthetized.

Protoplasm itself may be anesthetized, and on this depends the all but universal anesthetic power of ether and chloroform; for protoplasm is the basis of all life—is the fundamental living element of all tissues. On protoplasm ether and chloroform act by suspending vital activity, or, to speak differently, by suspending the power of reacting to stimuli. This is anesthesia in its simplest form. It is the first stage in the action of these anesthetics on protoplasm—a point of some importance, for there is in this case, as in more highly organized bodies, a second and deeper stage in which the vital activity, the power to react to stimuli, is destroyed without possibility of renewal.

The nature of anesthesia in man is not much different. In man, as in simpler organisms, it is the protoplasm that is attacked. We extract from BERNARD a passage bearing on this point: "If we reduce a man to insensibility—for example, by means of ether or chloroform—we find that the anesthetic, on being breathed, is absorbed by the lungs and circulates in the blood. It is first upon the delicate protoplasm of the nervous centers that the anesthetic exerts its influence, whence, indeed, it happens that the phenomena of consciousness and perception by the senses are the first to disappear, although the protoplasm of the nerves, the muscles, the glands, and other anatomic elements is not affected. This explains why, during anesthesia, the functions of life are able to continue, and this also explains why anesthesia in this stage is not perilous to life; for if, at the same time, we should reduce the protoplasm of all of the anatomic elements to a state of anesthesia, the functions would simultaneously cease their activity and death would be instantaneous."¹

How, then, may we describe the changes that occur in protoplasm during anesthesia? How is the irritability of tissues or of the elements of tissues suspended by an anesthetic? Possibly, because some chemical or molecular change is induced (BÖTTGER). This, as PROF. SCHMIEDEBERG remarks, is no explana-

¹ Op. cit., p. 254.

tion at all. A better and more definite explanation is one that appears to be gaining ground and has had the support of BERNARD, BINZ, and POHL, that these changes, chemical or molecular, are a phenomenon of coagulation.

To such a theory the recent researches of POHL lend some support. From them it appears that chloroform—which he selects for experiment—is never present in the blood in a quantity greater than 0.01 per cent., and that on the average the quantity is not greater than 0.035 per cent.—a fact that serves to explain why the vital activity of the protoplasm of the nervous centers is suspended (a suspension that we have seen really takes place in simpler protoplasm and constitutes true anesthesia), but not destroyed. It is further worthy of remark, that in cases of death from chloroform, POHL found always a higher percentage in the blood than at other times. Are there, however, any facts to show that chloroform does exert its influence upon the nerve-centers first, and on them more powerfully than on other portions of the body? It may be answered, Yes, with some slight qualification that is not material.

POHL found that in the blood chloroform was taken up chiefly by the lecithin and cholesterin, for which it manifests a strong affinity; that it accumulated in those parts of the body that are rich in these substances—in the brain more especially; that the serum held very little, an exceedingly small amount indeed. It is this tendency of chloroform to enter rapidly into combination with lecithin and cholesterin, and therefore to make its way rapidly to the brain—the organ richest in these constituents, that supports the views already mentioned. But it is, perhaps, unfortunate for a theory that professes to explain anesthesia by supposing some specific action of chloroform on the nerve-centers, and particularly the ganglion-cells, that these are not richer than many others, as, for example, liver-cells, in those substances that have an affinity for chloroform.

We cannot, POHL says, with propriety speak of anesthesia of liver-cells. That this is, nevertheless, not an objection of very great weight is manifest if it be recalled that it is not the function of the cell, or any accidental properties belonging to the cell, that render it capable of anesthesia, but its having protoplasm for a basis. We cannot, to be sure, abolish the faculties of perception and sensation of a liver-cell, but these faculties are not essential to anesthesia, except in so far as they are inherent in protoplasm;

for anesthesia is finally that state of protoplasm in which its vital power—its power to react to stimuli—is suspended, but not destroyed.

We have said that the present speculations fall short of the truth because they ignore or treat but very partially the facts of psychology. Has it never occurred to the advocates of the theory just described to consider the phenomena from the psychologic point of view as well? Have they never reflected on the number and nature of those changes that take place when consciousness is lost? Is but one part of the brain concerned when there is successively loss of perception, loss of sensation, loss of the power of forming judgments, loss of will, and finally complete loss of intelligence, or is there something more concerned? The matter, we are sure, requires careful analysis, and we trust someone will come forward who is capable of it.

Besides, it may be urged against this partial view of the nature of anesthesia, that some anesthetics act differently than do others; and though it may be true of chloroform that in the course of its action on man consciousness and perception by the senses are affected first, it is not true of another anesthetic, ethyl bromid. We extract from VON ZIEMACKI's paper on ethyl bromid a valuable passage that makes this clear—a passage that shows so well, besides, that anesthesia, as it ought to be conceived, is something more than local or general insensibility to pain.

After describing the preliminary effects of ethyl bromid, redness and tingling of the skin, etc., VON ZIEMACKI continues: "In this stage (the second) sensation was practically abolished, but *intelligence was unimpaired*. I heard and understood perfectly the conversation of my colleagues about me; and I recollect with great vividness that the feeling of taste was unaffected, though at the same time I felt no longer the pain of a puncture of the nose. Sensibility to pain, in fact, was from this time completely suspended. I understood easily that the puncture of the nose must be painful, yet I felt only the *sense of contact, not the pain*, which is a very striking fact. Next, there was darkness before the eyes. . . . Unconsciousness, I maintain, supervened very rapidly."

From this, it is clear that sensation was lost before perception, and perception before consciousness. Last came unconsciousness. In the stage before that, in the intermediate stage between the loss of perception and the loss of consciousness, there was

no true anesthesia, for the mind was still free, and hence a puncture was felt, but not the pain accompanying it.

With these facts before us, it appears to us inconceivable that the theory of "specific action on the ganglion-cells" is a sound explanation of anesthesia; for that is a theory that seems to demand something invariable in the order of the phenomena, some function, besides, which has no ground for existing in the ganglion-cells themselves.

A TRUE PHYSICIAN.

THE advice as to the prophylaxis of venereal disease that individuals calling themselves physicians have dared to give, and that journals assuming to represent the therapeutic status of the day have dared to publish, has on previous occasions been discussed in these columns. It is with a deep feeling of gratitude to the manly author that we now quote advice upon the same subject—but far different in spirit—from the reprint just issued of GOWERS'S Lettsomian Lectures of 1890, "On Syphilis and the Nervous System."

"One means alone remains, old as the malady itself, by which it can be prevented. One method, and one alone is possible, is sure, and that one is open to all. It is the certain prevention secured by unbroken chastity. . . . Do we do all we can—and our profession gives us power that no other has—do we do all we can to promote that perfect chastity which alone can save from this and from that which is worse? The opinions that on pseudo-physiological grounds suggest or permit unchastity are absolutely false. . . . They rest only on sensory illusions, one of the many illustrations of a maxim I have often to impress on various sufferers, 'There are no liars like our own sensations.' Rather, I should say, they rest on misinterpretations of these, always biased and often deliberate. With all the force that any knowledge I possess and any authority I have can give, I assert that no man ever yet was in the slightest degree or way the worse for continence or the better for incontinence. From the latter all are worse morally, a clear majority are worse physically, and to no small number the result is and ever will be utter physical shipwreck. . . . Let us then, with our power for good or evil, beware lest we ever give even a silent sanction to that against which, I am sure, on even the lowest grounds that we can take, we should resolutely set our face and raise our voice."

These are the words of the true physician, and again let us express our thankfulness that even in this age of demoralizing competition for wealth, popularity, and the influence that may be gained by "saying of evil 'it is good,' and of good 'it is evil,'" one teacher at least has the wisdom to see the truth and the courage to speak it.

SOCIETY PROCEEDINGS.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, December 28, 1892.

DR. J. M. BALDY read a paper entitled "Gynecological Technique as Carried Out at the Gynecean Hospital."

He stated that the watchwords from the beginning to the end of an operation are *thoroughness* and *simplicity*.

The preparation of the patient should begin, when possible, at least twenty-four hours before the operation. The first steps are to regulate the diet and empty the gastro-intestinal tract. Free purgation is begun at once, preferably by the use of magnesium sulfate, a dram dissolved in water, every hour until the bowels begin to move. Usually five or six doses are sufficient to accomplish the object. The purgative should be so administered that the action of the bowels ceases five or six hours before the time set for the operation. After beginning the administration of the purgative, the diet should be light and concentrated. If the operation is to be performed in the afternoon, the patient's supper on the day before consists of the ordinary house-diet. From this time on nothing passes her lips, unless it be a glass of milk or a cup of bouillon at breakfast-time. Even water, except in small quantities, is withheld. These steps in the preparation can be carried out in the case of most patients, but in dealing with an unusually weak woman, considerable judgment must be used.

A hot bath is given on both the day before and the morning of the operation. If the patient is unable to be moved to the bathtub, the patient is bathed in bed. Prior to the final bath an enema of soapsuds and water and a vaginal douche of mercuric chlorid (1 to 3000) are given. Immediately on coming from the bath a fresh night-gown is put upon the patient and she is placed in a bed specially prepared for her reception. After returning to bed the abdomen—the seat of the operation—is specially prepared. A nail-brush, soap and hot water are used freely and vigorously, special attention being paid to the umbilicus and the pubic hairs. In exceptional cases the pubes is shaved. The abdomen is then bathed with alcohol and turpentine and is finally protected until the time of the operation with a towel wrung out of mercurial solution.

When the patient is placed on the operating-table the abdomen is well rubbed with ether and bathed with alcohol by the operator as the final preparation, especial attention being paid to the pubic hairs and the umbilicus. The legs are wrapped in a blanket, which extends from the feet to the pubes; a second blanket is placed over the chest. All blankets, clothing, table, etc., about the patient, from her chest to her feet, are now covered with towels prepared for the purpose, the abdomen being left bare from the epigastrium to the pubes. Over all this is placed a piece of mercurial gauze, with a slit in it at the point selected for the incision.

All tables used in the operating-room, with the exception of the Krug frame for Trendelenburg's position (which is of galvanized iron), are made of wood, perfectly plain, and shellacked. The reason for this is twofold—first, because it is desirable in the preparation of the room that it should be emptied; this is rendered

possible in the case of everything except the gas-fixture and the sink. Secondly, as there is an operating-room on each floor, it becomes necessary to frequently move the tables from one room to the other. When the rooms are not in use, the windows are always open. The walls of the room from floor to ceiling are of white tile; the window trimmings are of white marble; the floors are of asphalt; the ceilings are plastered and heavily painted. In the preparation, the room is first stripped of all of its furniture. The walls, ceiling, and floor are washed by means of a hose, and then mopped with a cloth dipped in mercurial solution. As each article is brought into the room it is scrubbed with soap and water, rinsed off, mopped with mercurial solution, and placed in its proper position; the tables and benches are covered with sheets or towels specially prepared for this purpose. All linen used in the operating-room has been separately laundered. Distilled water is used throughout the operation.

After an operation the instruments are thoroughly scrubbed with soap and water, and are then passed through scalding water before being returned to the case. Prior to the operation they are boiled for twenty minutes in a weak solution of sodium bicarbonate. As few instruments as possible are used. In an ordinary operation, two needles, two ligature-staffs, four hemostatic forceps, a knife, a needle-holder, and a pair of scissors are amply sufficient. These are taken, together with the tray on which they are placed for boiling, directly from the sterilizer, and put upon the table as the patient is brought into the room. In this way they are not handled from the time at which they are taken out of the sterilizer until they are to be used.

Three varieties of ligatures are employed: silk, silkworm-gut, and catgut. A half-hour before the operation the silk is immersed in a solution of mercuric chloride (1 to 100); prior to being used it is washed in boiling water. The silkworm-gut is boiled with the instruments. The catgut is prepared by being immersed in ether for forty-eight hours, soaked for the same length of time in a 1 to 100 alcoholic solution of mercuric chloride, after which it is put in a solution of two parts of oil of juniper and one part of alcohol. It is taken directly from the latter solution for use at the operation.

All sutures and ligatures used within the abdominal cavity are of silk (Chinese twist). Silkworm-gut is invariably used for closing the abdominal wound. Catgut is used principally in vaginal hysterectomy and plastic work.

New sponges are prepared by being thoroughly beaten, soaked for twenty-four hours in a weak solution (3 per cent.) of hydrochloric acid, after which they are soaked for twenty-four hours in a strong solution of sodium bicarbonate, and are finally placed in alcohol. Immediately after being used in an operation they are thoroughly washed in cold water, placed in a strong (practically saturated) solution of sodium bicarbonate for twenty-four hours, at the end of which time they are removed, washed under the cold-water spigot until all of the sodium salt is washed away, and are then immersed in a solution of sulphurous acid for twenty-four hours. They are taken directly from the acid solution, washed, and placed in commercial alcohol until used. Four sponges only are used at each operation.

The dressing of the abdominal wound consists in

placing several strips of dry mercurial gauze over the incision and a cotton pad covered with gauze over this, the whole being held in place by a six-tailed bandage. Dressings are not disturbed for eight days. No iodiform or other powder is used. Stitch-hole abscesses are exceptional.

After being used, the glass drainage-tubes are soaked in a strong solution of sodium bicarbonate for twenty-four hours, rinsed under the spigot, washed with turpentine and ether, and then boiled for twenty minutes, after which they are kept in commercial alcohol.

Rubber drainage-tube, whenever used, is soaked in mercurial solution, and washed in boiling water.

After an operation the drainage-tube is cleaned by the nurse every fifteen minutes or half-hour, as occasion requires. As the fluid discharged from the tube lessens in quantity, the intervals between cleaning are lengthened. Whenever the tube is cleaned the nurse's hands are carefully prepared with soap and water and mercurial solution.

At and after each cleaning the syringe used to withdraw the tube-contents is cleaned inside and out with hot water and mercurial solution, as are also the mouth of the tube and the rubber protecting it. Fresh mercurial cotton is placed over the entrance of the tube at each cleaning. The tube is removed as soon as the contents become clear and small in quantity. The edges of the opening left by the tube are drawn together by a strip of adhesive plaster, and the dressings replaced by fresh ones.

Everybody that takes part in an operation, and is liable during its performance to handle any of the instruments or materials, is required to go through the same preparation. All assistance is rendered by three nurses; the chief nurse assisting the operator directly, a second nurse attending to the sponges, and a third nurse changing the waters. The preparation of operator and nurses is as follows: a hot soap bath is taken, and clean linen clothing direct from the laundry is donned. The hands and arms are prepared by first carefully cleansing the nails with a penknife, followed by a free use of hot water, soap, and nail-brush for twenty minutes, and rinsing in fresh water. They are then bathed in commercial alcohol, and are finally soaked in a mercurial solution (1 to 2000) for five minutes. The greatest danger-point of infection is, of course, under the nails, and time used in a most careful hand toilet is never misspent—is, in fact, absolutely essential to success.

There is not an article in the operating-room that cannot be duplicated or easily substituted in almost any well-ordered household. Soap, water, nail-brush, and tablets of mercuric chloride are easily obtained, and with a little time and trouble the poorest hovel can be turned into a good and safe operating-room. Of course, this means hard work for both nurse and surgeon, but what nurse or surgeon who has once experienced the horrors of a death from septic peritonitis would not feel that the work before the operation was as nothing in comparison with the results that follow.

The number of instruments, sponges, etc., may seem to many to be entirely inadequate for the purpose, but in many hundreds of operations they have been found amply sufficient; it is exceptional that recourse to the instrument-case has been necessary. The fewer articles

used the fewer sources of possible infection and accident. A large number of instruments lying about constitutes, in addition, a source of endless confusion and annoyance, and requires an extra assistant.

CORRESPONDENCE.

CHLOROFORM AND THE HEART.

To the Editor of THE MEDICAL NEWS,

SIR: In your issue of October 29, 1892, this passage occurs: "We have noted as instances of that frame of mind which is unsuitable for fair judgment such statements as Surgeon-Major Lawrie's, that 'the most important result of the labors of the Hyderabad Commission has undoubtedly been to establish the proof that chloroform has never under any circumstances whatever a direct action upon the human heart.'"

1. The experiments of the Hyderabad Commission have been confirmed by cross-circulation experiments, performed in Hyderabad during the last three months. They prove that chloroform has no direct action on the heart, and that the fall of blood-pressure, which is the normal condition of anesthesia with chloroform, is due to its action on the vasomotor center in the medulla oblongata. Narcosis of the vasomotor center causes dilatation of the small arteries, by which the fall of blood-pressure is brought about, and is one of the earliest, if not the very earliest, of the effects of chloroform. The passage of the blood from the arterial to the venous system is thus greatly facilitated, so that the work of the heart is lessened. Not only, therefore, has chloroform no direct action on the heart, but the heart is safeguarded from the commencement to the end of the administration, whether the anesthetic is given in medicinal or in poisonous doses. Moreover, unless the nutrition of the heart is interfered with by interference with the breathing, as, for example, by choking or by overdosing, the heart may safely be left to look after itself. The heart is, literally and in truth, the chloroformist's sheet-anchor, and his very best friend.

2. There is no such thing as a safe *method* of chloroform administration, and overdosing may take place in a variety of ways, whether the drug is given on lint or on a towel, or on a cap such as we use, or with Junker's or Skinner's, or any other form of inhaler. The one and only point of vital importance in the administration of chloroform is that, whatever method be employed, the breathing shall never be interfered with in any way throughout the inhalation. If this condition is fulfilled, it is impossible to produce anything with chloroform but anesthesia, and anesthesia alone is entirely free from risk.

3. I am at a loss to understand why you should regard a frame of mind that is the outcome of twenty-six years' clinical experience, in England and in India, which accords with the foregoing facts in every particular, as "unsuitable for fair judgment."

4. I venture to submit, most respectfully, that this frame of mind is infinitely more suitable for fair judgment than the frame of mind of the writer of your article. Any evidence, however trumpety, is accepted by certain writers if only it favors the view that chloroform affects the heart directly; and they unhesitatingly reject without examination all evidence which goes to prove that it never does so.

5. The following statistics may be of service to you: Up to the end of November of this year I have notes of every event which took place during more than two thousand chloroform administrations in the Afzulgunge Hospital. There were two cases of narcosis of the respiratory center due to accidental overdosing. In one case the patient was saved by "secondary chloroform syncope"—one form of that reflex stoppage of the heart, which, according to the Glasgow committee, constitutes the chief danger under chloroform; and in the other by artificial respiration.

Your most obedient servant,

EDWARD LAWRIE,
Surgeon, Lieut.-Colonel.

THE RESIDENCY, HYDERABAD, DECCAN,
December 8, 1892.

[We inserted the passage that has given Dr. Lawrie perhaps just offence, assuredly from no want of respect for him, but merely because, in order to make our paper complete as a piece of criticism, we needed to give eminent examples of a bias, plainly discernible in nearly all the writings we examined, toward one anesthetic or another. We selected, we say, eminent examples. It would be invidious and harsh in such a case to do otherwise. Dr. Lawrie's experience with chloroform has been unrivalled for consistent and successful carrying out of sound teaching, and we are not inclined to depreciate it, as he seems to suppose. It is this experience constantly making itself felt in matters above it that we objected to. In abstract reasoning on the results of experimental science it is constantly working for evil, by transforming those results, by distorting them and giving them a large asseverative character, to the exclusion and prejudice of other facts that might be reconciled with them. Hence, the sentence in question, purged of this disturbing element, contains the truth, and Dr. Lawrie would write it so: that the "most important result of the labors of the Hyderabad Commission has undoubtedly been to establish the proof that under these circumstances chloroform never has a direct action on the heart;" but into his mind comes the recollection of his great and successful experience, and he writes "human heart" and "never under any circumstances whatever."¹ Thus the sentence comes to contain a truth and the implicit denial of another truth—a truth demonstrated by Laborde and François Franck, that chloroform acts mechanically, as indeed other volatile substances do on the terminal filaments of the nasal branches of the fifth nerve, and arrests *simultaneously* the heart and respiration—a stoppage that is nearly always temporary, but sometimes fatal (*arrêt cardio-respiratoire primitif*).² If this is a real danger, then sentences like Dr. Lawrie's tend to obscure it.

We are sorry that we have not space for a minute reply to the following passage from a postscript: "I

¹ There are passages in Dr. Lawrie's articles and printed correspondence in which he has spoken more carefully, seeming to admit the possibility of an accident if Syme's principles are neglected. See, for example, the *Lancet*, vol. i, 1891, p. 591.

² *Bulletin de l'Académie de Médecine*, 3^{me} série, tome xxiii, pp. 556, 591, 613, 709, tome xxv, p. 816; *Gazette hebdomadaire de Méd. et de Chir.*, 1876, pp. 773, 775; *Archives de Physiologie norm. et path.*, 1889, p. 548; also, Du Bois-Raymond, *Berliner klin. Wochenschrift*, 1891, No. 53.

have never met with any case fit for an operation which was not fit for chloroform. This is the expression of one man, and must be taken for what it is worth."

This refers to our remark that some cases were fit for chloroform, some for ether, some for gas, etc. This statement, we believe, is true, and we made it because we thought it a pity that anyone should be prevented from using chloroform who can use it properly; and more particularly because we thought that the first step toward a sound course of instruction in the matter of anesthetics for students was to let each anesthetic have free play to establish any just claims.—EDITOR THE MEDICAL NEWS.]

LABOR DELAYED BY RIGIDITY OF THE OS UTERI.

To the Editor of THE MEDICAL NEWS,

SIR: In a recent article, Dr. Edward P. Davis (THE MEDICAL NEWS, December 10, 1892, p. 656) truly says: "There is no more trying complication of labor for patient and physician than persistent rigidity of the os uteri"—a statement with which I fully coincide. In a case recently under my observation no surgical aid was required; in fact, in an experience of twenty years of active practice I have never had occasion to incise the cervix, for the reason that I have always accomplished dilatation by means of the fingers and Barnes's dilators, or by the ballon-Champetier, which I prefer in some cases, as it produces more rapid contractions; and in cases of hemorrhage from detachment of the placenta, it acts as an excellent intra-uterine tampon.

Mrs. A. B., thirty-two years old, a primipara, of good general development, rather robust, with a normal pelvis, was taken in labor on the night of November 21, 1892. As I was occupied with another case at the time, Dr. E. F. Smith attended the woman for me. On making a vaginal examination he found the cervix rigid and undilatable, although the pains were severe and frequent. As in the course of an hour no progress or change had taken place, he ordered a dose of chloral hydrate, gr. xx, to be repeated at the end of an hour, if no sleep had been secured. The pains persisted during the night, and about 6 o'clock A.M. the characteristic bearing-down pains had set in. The cervix was still unyielding. The patient had not derived much benefit from the chloral, on account of the persistent and severe pains which had continued during the whole night. I saw the patient this day at about 1 P.M. I found the cervix still rigid, but by manipulation succeeded in introducing my index-finger into the uterine cavity, and found a vertex-presentation in the right occipito-posterior position. The membranes had already ruptured spontaneously, but no amniotic liquid could be detected. By this time the patient's strength was failing, and as the bearing-down pains were severe and frequent, and a reasonable time had elapsed since labor had begun, without progressive dilatation, it was decided to promote this end by manual procedures until Barnes's smallest dilator could be introduced. This, however, was soon pushed down into the vagina by the strong uterine contractions, but was replaced immediately by the next larger size until finally the largest size was introduced. Sufficient dilatation had now been produced to admit

the introduction of the forceps, which were applied without difficulty and without the use of an anesthetic. Gentle traction was made with each pain, and after some hard pulling delivery was accomplished without any accident or injury to the mother. Unfortunately the child, a well-developed boy, died shortly after being born, in spite of all efforts at resuscitation. A dose of ergot was given to the mother, and as the placenta did not come away, after waiting twenty minutes I had recourse to Cr  d  's method.

I do not advise or recommend the making of multiple incisions into the cervix. My experience has taught me that by the use of the fingers, Barnes's dilators, or the ballon-Champetier, dilatation can be effected without exposing the patient to septic infection by the use of the knife. Dr. Davis well says: "It is distinctly a dangerous method of treatment."

Respectfully,

J. J. LAMADRID, M.D.

BROOKLYN, N. Y.

POSSIBLE ABUSES IN PRIVATE HOSPITALS.

To the Editor of THE MEDICAL NEWS,

SIR: A patient was admitted on December 3d to the Gynecological Ward of the Philadelphia Hospital with the following history: J. D., aged twenty-three years, had been perfectly healthy and free from pain until five weeks ago, when she had a fall, followed by severe pains in the groins and back. She was examined by an abdominal surgeon, who urged an immediate operation, to which she consented, and for which she entered the surgeon's private hospital. She does not know what was done to her, but she was very ill after the operation and suffered greatly. At the end of four weeks, although she was in a wretched condition, she was told she must leave the hospital, as it was against the rules to keep anyone longer than that time. She went to some friends, but as she was perfectly helpless and they could not attend to her, she was sent to the Philadelphia Hospital on the next day but one.

On examination, a large fistula was seen in the lower part of a scar upon the abdomen, discharging flakes and pus. The temperature was high, the pulse very rapid and feeble. It was plain that the patient had not long to live. Her life was a little prolonged by good treatment and nursing, but she died on December 26th. Now, if the woman's story was true—and I see no reason to doubt it—she had been ill-treated. The inference is unavoidable that she was turned out of the hospital in which she had been operated upon to save trouble, expense, and the operator's statistics. It was perfectly evident that she must die, and it was known, she declared, that there was no one to care for her. Had this occurred in a public hospital the managers would have called the surgeon to sharp account, but when one individual is owner, manager, and operator, he is at present absolutely irresponsible, and the temptation to do his patients wrong from interested motives may be strong. Would it not be a wise regulation that private hospitals should be licensed and regularly inspected by the authorities? On well-grounded complaint the license could be revoked. And would not a proposition to this effect come more gracefully from the profession itself?

It is better policy, surely, to suggest and provide safe-

guards ourselves against individual wrong-doing in our ranks that may sully the reputation of medical men as a class, rather than to have such measures forced upon us from outside.

Very respectfully,

BARTON COOKE HIRST.

REDUCTION OF GOITER BY THE FARADIC CURRENT.

To the Editor of THE MEDICAL NEWS,

SIR: An article in THE MEDICAL NEWS of December 3, 1892, page 634, entitled "Reduction of Goiter by the Faradic Current," calls to mind a similar case of my own:

Miss P., fourteen years old, consulted me for a "large neck," which had been noticed first about one year previously. She was a strong, healthy girl, and experienced no inconvenience, save the embarrassment from the ungainly appearance.

When I first saw her the neck measured fourteen and a half inches in circumference. The faradic current was applied as strong as could be borne for fifteen minutes, placing the poles on opposite sides of the neck over the thyroid bodies.

At the second sitting the neck measured fifteen inches, an increase of half an inch. After this it began to rapidly diminish in size, and after ten sittings it had reached the normal size, measuring twelve and a half inches, and has remained so ever since (four months).

Respectfully, M. B. VEEDER, M.D.

CENTRAL SQUARE, N. Y.

SURGICAL INTERFERENCE IN TYPHOID FEVER.

To the Editor of THE MEDICAL NEWS,

SIR: In your interesting leader on "Surgical Interference in Perforated Typhoid Ulcer" (THE MEDICAL NEWS, November 26, 1892, p. 613), you observe that "But two text-books refer to the possibility of surgical interference in this form of perforative peritonitis."

If you will kindly refer to page 472 of my *Text-book of the Eruptive and Continued Fevers* (reviewed in THE MEDICAL NEWS, July 30, 1892), you will find the question, "Shall Laparotomy be Performed for Intestinal Perforation in Enteric Fever?" fully discussed and ample justice done to Dr. Weller Van Hook's paper (THE MEDICAL NEWS, November 21, 1891).

I remain, dear Sir,

Yours faithfully,

J. W. MOORE.

40 FITZWILLIAM SQUARE, WEST DUBLIN.

NEWS ITEMS.

Regulation of the Milk-supply.—At a recent meeting of the New Jersey State Sanitary Association, Professor Leeds made a most earnest and urgent appeal for a more stringent regulation of the milk-supply in the interest of the public health, and especially as far as infants are concerned. The immediate occasion of the appeal was the revelation of the deplorable and dangerous condition of the cattle in Hudson County, although similar conditions likewise exist in other parts of the State.

After the swill-milk stables had been driven out of New York City and Brooklyn, their proprietors took refuge on the Jersey side of the Hudson river. Over two thousand stables, with upward of ten thousand cattle, are given up to the manufacture of brewers' grains into milk, the cow being the factory in which this nefarious business is carried on. In many cases the fresh cow is driven into a stall, her head is fastened to a board with a vertical slot, so as to admit of no motion except an up-and-down movement of the head. Thus imprisoned, the cow is fed exclusively on brewers' grains until she sickens or runs dry. The stables are filthy, unventilated, and shockingly foul. The feeding results in chronic diarrhea, and the cow is no longer capable of calving again, but is sold for butchers' meat.

The crowding, heat, filth, and lack of ventilation cause the animals to fall victims to disease, so that tuberculosis and other dangerous maladies run riot among them. The milk, even when the cows are not diseased, is not fit for food. It spoils rapidly, has an unpleasant odor, forms a hard, indigestible curd, and contains actively poisonous principles; but very commonly the cow is tuberculous or otherwise diseased, and then, in addition, the germs of disease are present in the milk, and, without their origin being suspected, illness and death are carried to multitudes of children.

The water used in these stables is frequently taken from wells in the yards, which are simply drains for manure and sewage. This water is used in washing the cans and utensils and in watering the milk. Such water is full of impurities and bacteria and powerfully assists in the dissemination of disease. Not only in these stables but throughout the State, tuberculosis among cattle is prevalent to a dangerous extent. The remedy for these evils is to be found in an efficient system of official dairy-inspection and sanitary milk-control. Only by this means can pure milk from healthy cows be delivered to the consumer in the same wholesome condition as when freshly drawn at the dairy. To this end tuberculous cattle should be killed. Moreover, the State inspectors should not only see that all persons engaged in the production and sale of milk are carrying on the business in conformity with the State laws, but should also be required to issue licenses to them for a limited period, say for one year, to that effect, such licenses to be forfeited on infraction of the law. The effect of these regulations would be to confine the milk-business to suitable country dairies, and to farmers and others competent to carry it on in a safe and proper manner.

Railway Accidents in the United States.—According to the Report of the Interstate Commerce Commission the following were the railroad casualties for the year ending June 30, 1891: The number killed during the year was 7029, and the number injured was 33,881. Of these totals, the number of employes killed was 2660, and the number injured was 26,140. The number of passengers killed was 293, and the number injured was 2972. A classification of casualties according to the kind of accident shows that 415 employes were killed, and 9431 injured while coupling and uncoupling cars; 598 were killed and 3191 injured by falling from trains and engines; 78 were killed and 412 were injured from overhead obstructions; 303 were killed and 1550 were injured in col-

lisions; 206 were killed and 919 were injured from derailment of trains; 57 were killed and 319 were injured from accidents to trains other than collisions and derailments already mentioned; 20 were killed and 50 injured at highway crossings; 127 were killed and 1427 were injured at stations; the balance, which makes up the total of 2660 killed and 26,140 injured, is due to accidents which do not naturally fall in the classification adopted for report. Referring to passengers, 59 were killed and 623 injured by collisions; 49 were killed and 837 injured by derailments; 2 were killed and 34 injured by other train-accidents; the balance, making up a total of 293 killed and 2972 injured, being assignable to accidents at highway crossings and at stations, and to other kinds of accidents.

Not only is the number of accidents of the year covered by this report greater than that of previous years, but, when compared with the increase in employes, it is observed that it is relatively greater than that of the previous year. Thus, during the year ending June 30, 1891, 1 employe was killed for every 296 employes, and 1 employe injured for every 30 men in railway service. The corresponding figures for the previous year are: 1 man killed for every 306 employes, and 1 man injured for every 33 employes.

Third Congress of American Physicians and Surgeons.—The first meeting of the Executive Committee of the Third Congress of American Physicians and Surgeons was held December 27th, in Philadelphia. The committee was organized by the election of Dr. William Pepper as chairman, and Dr. Newton M. Shaffer as secretary. The following officers of the Congress were elected: Dr. A. L. Loomis, of New York, president; Dr. W. H. Carmalt, of New Haven, secretary; Dr. John Shaw Billings, of Washington, treasurer; and Dr. S. C. Busey, of Washington, chairman of the committee of arrangements. It was decided to hold the next meeting in Washington in May, 1894.

The Clinical Journal is the name of a new publication emanating from London, of which some ten numbers have already appeared. Each number is promised to contain one or more lectures or articles, short clinical notes, prescriptions, and a series of articles on the spas and baths of the United Kingdom and Europe. From time to time a supplement will be issued, containing notes of recent books and other publications, clinical reports on drugs, foods, and instruments and other appliances and articles recognized and used for medical and surgical purposes.

The Medical Society of the State of Pennsylvania will meet at Williamsport, May 16th, 17th, 18th, and 19th. All who desire to read papers at the session must submit them, not later than March 1st, by title, to Dr. H. G. McCormick, Chairman of the Committee of Arrangements, Williamsport.

CORRECTIONS.—In THE NEWS of January 7th, the word *unwillingly*, line 3, page 27, first column, should have been printed *unwittingly*. On page 12, second column, second line from the bottom, for *vaginal* read *virginal*.

BOOKS AND PAMPHLETS RECEIVED.

Some Observations on Lateral Curvature of the Spine as a Result of Empyema, with Report of a Case. By Charles H. Merz, A.M., M.D., Reprint, 1892.

A Study of the Artefacts of the Nervous System. By Ira Van Gieson, M.D. Reprint, 1892.

Witty, Wise, and Wicked Maxims. With a Preface by Henri Pene Du Bois. New York: Brentano's, 1892.

Report of a Case of Right-angled Deformity of Knee, Resulting from Tubercular Arthritis. By James F. E. Colgan, A.M., M.D. Reprint, 1892.

A Study of Flat-foot: with special attention to the Development of the Arch of the Foot. By John Dane, A.B. Reprint, 1892.

Suggestions for Improved Plans for Treatment of Recent and Recoverable Cases of Insanity. By John B. Chapin, M.D. Pamphlet, 1892.

Hygiene and Public Health. By Louis C. Parkes, M.D. Philadelphia: P. Blakiston, Son & Co., 1892.

The Management of Cancer of the Uterus complicated by Pregnancy, with Report of a Case. By A. Vander Veer, M.D. Reprint, 1892.

Some Considerations in Reference to Uterine Hemorrhage, Puerperal and Non-puerperal. By A. Vander Veer, M.D. Reprint, 1892.

Hystero-Epilepsy, with Report of Cases. By A. Vander Veer, M.D. Reprint, 1892.

What May be Considered Normal Corneal Astigmatism? From Kerato-metric Measurements of Three Hundred Eyes. By H. V. Würdemann, M.D. Reprint, 1892.

The Operation for Excision of the Ossicula in Chronic Aural Catarrh, with an Instance of a Failure. By H. V. Würdemann, M.D. Reprint, 1892.

Anemia of Tuberculosis. By B. K. Rachford, M.D. Reprint, 1892.

The Choice Between Extirpation and Colotomy in Cancer of the Rectum. By Charles B. Kelsey, M.D. Reprint, 1892.

Report of a Case of Sudden Death from Coronary Obstruction, with a Specimen. By Cassius D. Westcott, M.D. Pamphlet. Chicago, 1892.

Codeine in the Treatment of the Morphine Disease. By J. B. Mattison, M.D. Reprint, 1892.

Enteroclysis of Ice-water in the Treatment of Intestinal Diseases of Children. By Julius L. Salinger, M.D. Reprint, 1892.

Finger-prints. By Francis Galton, F.R.S. London and New York: Macmillan & Co., 1892.

The Chemical Basis of the Animal Body. An Appendix to Foster's Text-book of Physiology. By A. Sheridan Lea, M.A., D.Sc., F.R.S. London and New York: Macmillan & Co., 1893.

Some Practical Points in the Diagnosis of Spinal-Cord Lesions. By Frederick Peterson, M.D. Reprint, 1892.

Typhoid Fever in the Light of Modern Research. Facts and Doubts about Cholera. By L. Bremer, M.D. Pamphlet. St. Louis: Nixon-Jones Printing Co., 1892.

The Collegiate Degree as an Evidence of Fitness for the Study of Medicine. By L. Harrison Mettler, M.D. Reprint, 1892.

An Inquiry into the Relative Merits of Vaginal Hysterectomy and High Amputation or Partial Extirpation by Galvano-cautery in Cancer of the Cervix Uteri. By John Byrne, M.D., M.R.C.S.E. Reprint, 1892.

Purulent Ophthalmia Neonatorum as a Cause of Blindness. By Frederick E. Cheney, M.D. Reprint, 1892.

The Importance of Correcting Ocular Defects in Functional and Nervous Disorders. By G. L. Walton, M.D., and Frederick E. Cheney, M.D. Reprint, 1892.

Dangers of Malt Liquors as Galactagogues. By J. Wellington Byers, M.D. Reprint, 1892.

The Metschnikovian Theory of Vital Resistance. By J. Wellington Byers, M.D. Reprint, 1892.

Index-Catalogue of the Library of the Surgeon-General's Office, U. S. A. Authors and Subjects. Vol. XIII: *Sialagogues-Sutugin*. Washington: Government Printing Office, 1892.